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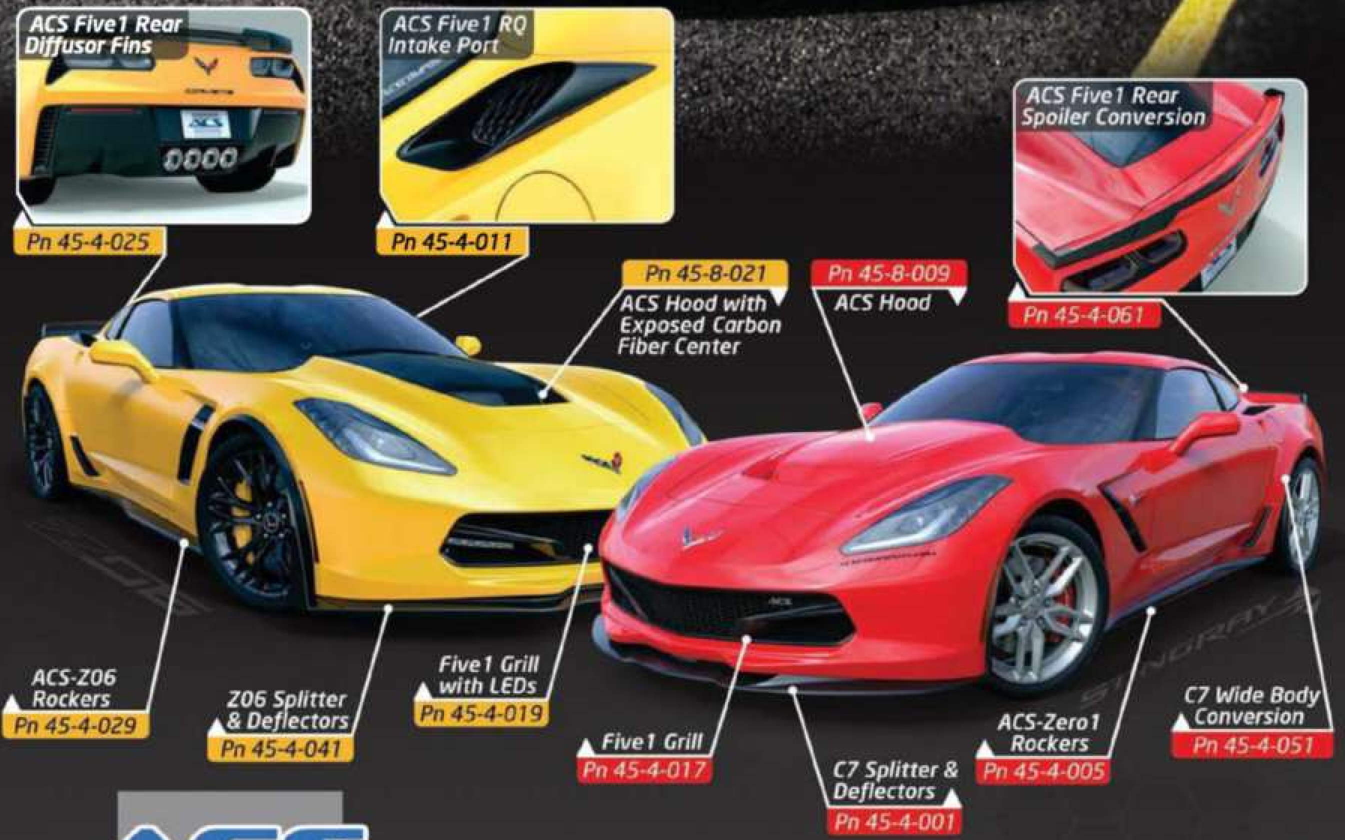

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THE GRID

SCOTT PARKER EDITOR

BAD MEDICINE

RENOWNED TUNER TALKS ABOUT FINGER POINTING IN THE INDUSTRY

Many shops are praising Vinny Ten, a renowned import builder and tuner, for a video that was making the rounds recently (viewer discretion is advised: http://bit.ly/LquYOZ). Shops typically don't want to make waves with potential customers or their suppliers, but the New Yorker tells it like it is, which has drawn praise. Those that have been on the Corvette Forum, or other such online forums, know all too well about the horror stories from various shops. For those that haven't watched it, and those that have, I'd like to give a quick synopsis and add to the most crucial points.

As a car owner, seeking a shop to build or tune your Corvette, you need to:

DO YOUR DUE DILIGENCE

Find a shop with a proven track record for building the exact or similar combination that you want. If none exists, then you need to question why that is the case. It could be that you are asking parts to operate beyond their desired use, the platform is just too new like with the Gen V, your goals are drastically different, or that no one has been bold (stupid or rich) enough to attempt it. The important thing to remember is that with the more complicated jobs, you need more talented individuals to put them together. But even if you are bargain hunting for something basic like a header install that could also come back to bite you.

MANAGE EXPECTATIONS

You can't make 1,000 hp with $1,000. And typically you can't make that kind of power without a few setbacks. Don't compare your car to every Corvette you've read about on the Internet or in magazines, and try to dictate every single minute detail. Presumably you are going to this builder because of his or her experience and expertise. Explain your goals to the builder, get his or her input, and plan accordingly. There might be a few turbocharged LS engines making close to 1,000 hp with stock pistons, but that doesn't mean it is a good idea or that yours will make anywhere near that. If the most important thing [to you] is to have a solid, reliable combination, then follow the builders' advice. Don't cut corners every chance you get and then act surprised when it turns into a nightmare. Oftentimes, trying to save a little money in the wrong place will wind up costing you more in the long run. If your goals exceed your budget, then either you need to lower your goals, save up until you can afford it (with a little extra for any setbacks), or work with the builder to partition the build – do a little bit here and a little bit there as money allows. This may seem like common sense to some, but – trust me – it isn't.

DON'T GET HUNG UP ON DYNO NUMBERS

Magazines and shops will hype up dyno numbers. It's what we do. It's good for business. But a dyno is just a tool. Its purpose is to show performance benefits (before and after testing), diagnose problems, and safely tune your engine. How much power you picked up with a set of headers is much more significant than the overall number. If you want a high dyno number, go to a shop on a cold day that is below sea level and uses uncorrected numbers. So often I see people comparing dyno numbers from a different brand dyno in another part of the country, which draws the inevitable conclusion that Shop A doesn't know what it is doing. Or that Shop B's dyno isn't working properly. If your Corvette runs well, the seat of the pants feel is positive, or it goes as fast as it should at the track – that is all that is important. For our part, *Vette* magazine will use SAE correction factor and emphasize gains whenever possible. In case you are wondering, STD correction does not take into account mechanical efficiency when calculating power like SAE. [A full explanation is available here: http://bit.ly/1e99sMp.) **VETTE**

Even when armed with all of this information, things do not always go smoothly. I have a nice set of vented LT1 pistons to prove it. To my credit, I have also blown up a dyno twice (with a nearly stock C6), gotten a four-point speeding ticket while tuning on the street after the dyno incident, left my broken car at the track overnight as well as limped home by a hope and a prayer, and been stuck on the side of the road more than I care to remember. Nearly each time, though, I've had a friend bail me out and had a great time along the way. And that, my friends, is what it is all about.

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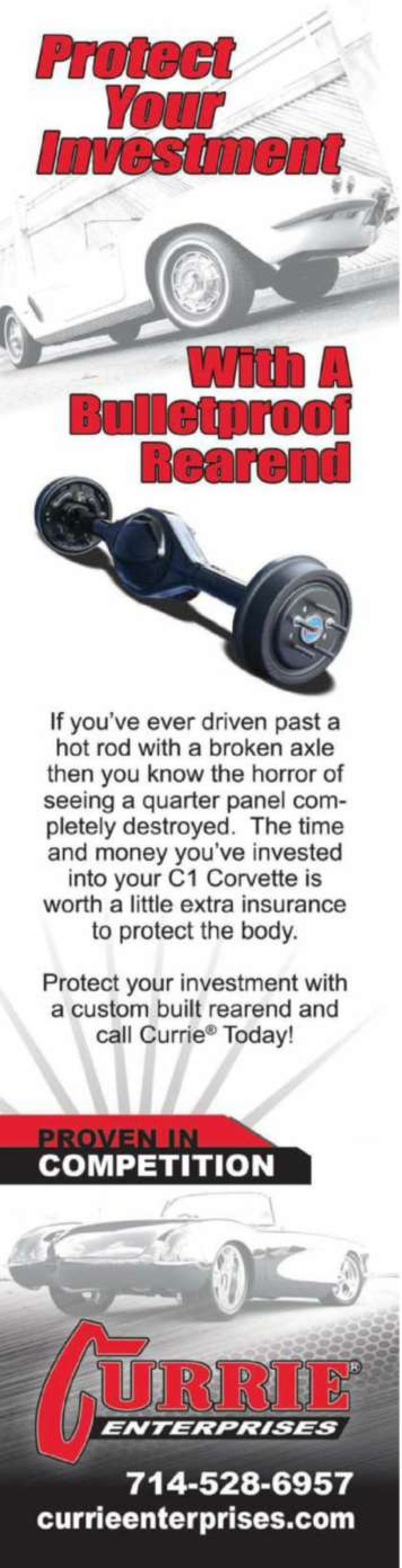

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FROM THE ARCHIVES

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WORLD'S FASTEST CORVETTE—1960 STYLE

Many Vettes have laid claim to being the "world's fastest," but this blown and injected '58 Corvette was the real deal, setting a B Grand Touring Sports record of 171.746 mph at the 1960 Bonneville Speed Trials.

Even more interesting, the car belonged to Brian Chuchua. That name may not be well known in Corvette circles, but ask a Jeep owner who Brian Chuchua is and they'll light up with tales of his off-road racing exploits, here and abroad. Chuchua was also among the first to sell aftermarket equipment for Jeeps, and he was a founding member of SEMA in 1963.

As a teenager in Southern California, Chuchua learned to drive—and drag race—in a Jeep. But with his sights set on going faster, he bought a brand-new Vette in 1958 and promptly fitted it with a McCulloch supercharger. That setup worked fine until an engine fire destroyed the entire front end of the car. Chuchua bought the totaled remains from the insurance company and then set out to build a full competition Vette from that charred carcass.

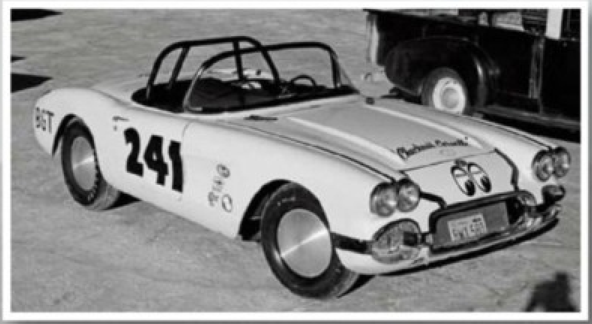
Longtime tech guru Don Francisco outlined Chuchua's build strategy in a March 1961 *Hot Rod* magazine article called "Double Threat Corvette." It turns out the McCulloch blower was just an appetizer for bigger things to come—a GMC 4-71 supercharger that he joined to the front of a '57 283-inch V-8 that was bored and stroked to 316 ci. Moon Equipment Company built the engine, which had '59 fuelie heads (polished and fitted with big valves), a Potvin Engineering kit to adapt the blower to the engine, and a Hilborn injection system to send fuel from the cockpit-mounted Moon tank to a Hilborn injector plumbed on the supercharger's inlet flange.

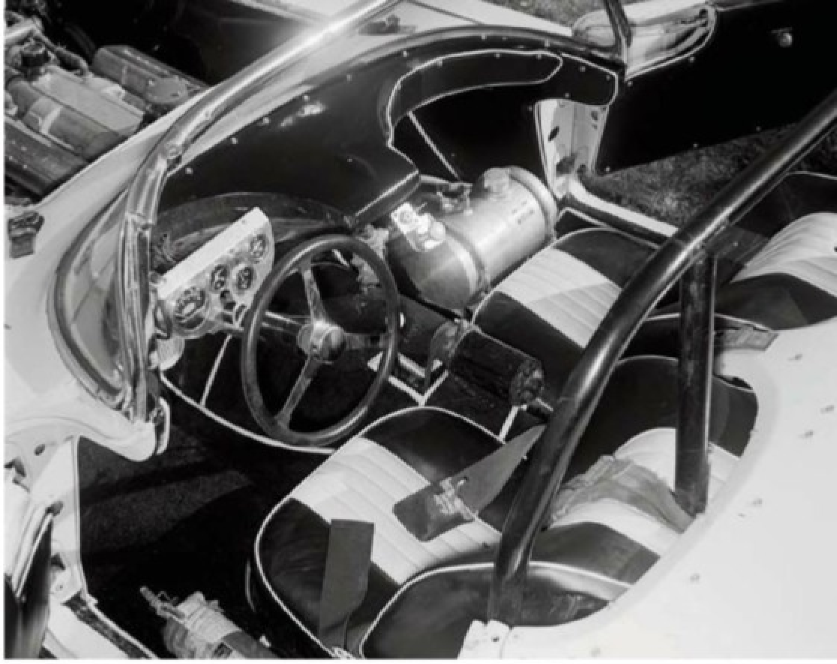
Because he wanted to race the car both at Bonneville and on the dragstrip, Chuchua adapted a Halibrand quick-change centersection into the Vette's rear, using a combination of Chevy and Ford gearsets, Ford axle-housings, and Chevy axleshafts. The whole assembly was trimmed so it would fit within the Corvette's bodywork and so that the spring pads would line up in their original location. Chuchua retained much of the Corvette's stock chassis, save for competition springs and shocks front and rear.

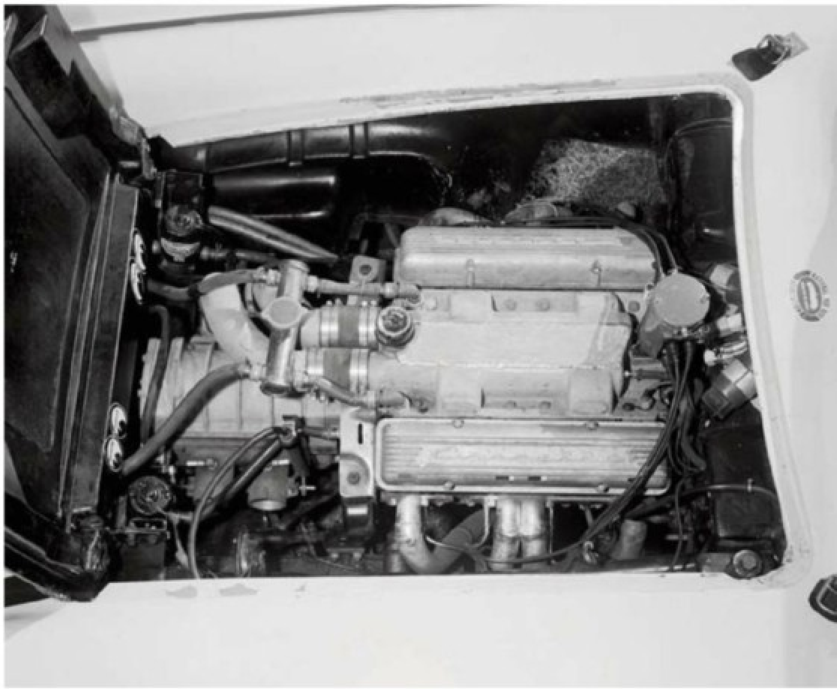
Francisco noted that Chuchua "pulled

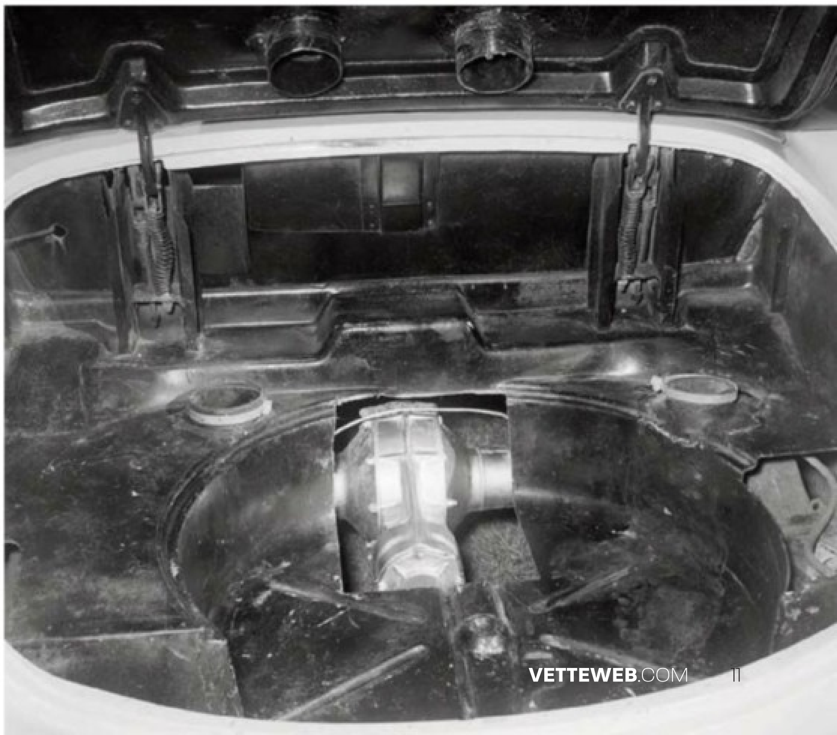
everything that wasn't absolutely necessary out of the car to cut its weight to the minimum." That strict diet is evident in the photos of the empty trunk—with the quick-change sticking through a hole for gear swaps—and the denuded interior. The bare dash panel is still there, but Chuchua swapped the stock instrument panel for a crude gauge cluster holding a minimum of instruments: tach, ammeter, oil pressure, and water temp. The Moon fuel tank sits next to him, as does a fuel pump to prime the system and a generator, which wouldn't fit underhood with the blower on the front of the engine. Ahead of the generator is the lever for the three-speed manual transmission.

Chuchua enjoyed some success with the Vette. Not only did his car set the Bonneville record (with Kenny Light driving), but he also set a half-mile dragstrip record of 138 mph at Riverside, California. Yet at the time of Francisco's article, Chuchua was looking to sell the Vette to build a small-displacement streamliner. We'd love to know where this car wound up. **VETTE**









PRODUCT PREVIEW

DROP IT

LG Motorsports just released the first and only C7 drop spindles on the market. Alone, these provide a 1-inch drop with improved suspension geometry and strength. Unlike simply adjusting the ride height via the factory leaf spring adjusters, there is no loss of shock bump travel so you won't disrupt the shock or height sensors with Magnetic Ride. Hardcore track users will appreciate the stronger wheel bearing and brake calipers mounts thanks to its billet construction, for less deflection. A mono ball upper pivot point will improve steering feel. Installation is a simple bolt-in operation for the Stingray or Z06, and retains all OEM hardware as well as mounting points. For more information go to **www.lgmotorsports.com** or call **972/429-1963**.

TUNE-IN TOKYO

That's right, you can add horsepower to your brand-new 2015 Corvette Z06 in just minutes by plugging into the OBD-II port and pushing a few buttons. Gaining power has never been this easy! DiabloSport says its C7 Z06 tuning will gain 30 rwhp and 20 lb-ft of torque, which is performance you can feel. During testing DiabloSport says the supercharged LT4 also had much better throttle response thanks to the "Throttle Booster" function, which adjusts throttle sensitivity. There are also options to modify spark, fuel, cooling fans, idle rpm, tire size, and gear ratio. Check out DiabloSport's inTune and Trinity programmers at **www.diablosport.com** or call **561/908-0040**.

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TECHNICALLY SPEAKING

JAMES BERRY CORVETTE TECH GURU

OIL IN THE AIR INLET TUBE C7 STINGRAY, PART 1

Q: Hello, James. I enjoy the how-to articles the magazine publishes every month. It really helps guys like me who love to work on and drive our Corvettes. Anyway, I am the proud owner of a new Stingray and I do believe in driving my car. After a recent 3,000-mile trip I was checking the fluid and filters. When I was going to check the air filter I noticed the rubber air inlet tube near the air filter element was full of oil.

The oil was in the air inlet tube between the air cleaner housing and the flexible air pipe that leads into the throttle body assembly. I have correctly checked the oil level as per the manual and it is 1/8-inch below the top of the hash marks. I have never added or removed oil and it has never been changed. The car was not track driven and I have not really driven the vehicle hard.

I believe the problem is in the Positive Crankcase Ventilation (PCV) system. I think this system is causing the car to ingest oil. I had this problem with my 1975 Corvette. Is the PCV system causing the oil to enter the intake tube? If not, do you know what is causing this issue and what can be done to resolve the problem? Thanks.

Brian

A: Brian, Corvette owners have been dealing with oil ingestion issues since the introduction of the C5 Corvette. However, with the introduction of the C7 Corvette and with the use of direct injection we are seeing more oil vapors in the PCV system.

We are also seeing more carbon deposits building up on the valves since the fuel never touches the intake valves with direct injection. The oil vapors can bake onto the intake valves causing coking.

There are only a few things that can cause oil to enter the intake tube area near the air filter element.

1) The first problem we have had since the C6 Z06 is the dry-sump tank vent burps oil. On the C7 Corvette this oil will end up in the airbox and in the air inlet tube.

2) If the oil is overfull, oil can be present in the intake tube area near the air filter element. Obtaining an accurate oil level reading is essential. First, run the vehicle until the fluids have warmed up and the thermostat has opened. Turn off the engine and check the oil between 5 and 10 minutes after shutoff. You must check the oil level soon after engine shutoff to provide an accurate oil level reading. This is an important step in a dry-sump oil system. The oil level, as per the manual, should read 1/8-in. below the top of the hash marks.

3) There is also a concern in the valve cover area and Chevrolet is working on this issue. They have improved the baffles in both of the valve covers and the valley cover where the PCV (Dirty Side) vapors are evacuated. Even with these improvements there is still a quite a bit of oil entering the intake air tube.

The manufacturer planned for the crankcase (PCV) and the dry-sump reservoir tank to vent into the air intake tube area. The reason for this was an effort to burn any vapors through the engine. Some of these vapors will have residues in them that come from the combustion process, which leaks past the rings (blow-by) and gets into the crankcase.

It is critical that these vapors are removed from the crankcase before they contaminate the oil. These vapors are routed into the air intake. This is good except when raw oil is carried into the intake, either through a burp from the tank or when the baffling in the PCV system is not efficient enough to stop the oil from migrating into the intake.

Once the oil enters the intake it can migrate into the air inlet tube and into the air filter box. The reversion pulses coming from the intake valves is how the oil can run uphill into the airbox and sometimes fill the airbox and leak onto the garage floor.

Even with these problems direct injection is far superior to port injection for many reasons

1) Direct injection allows for greater power to be made from the use of higher compression ratios. With direct injection compression ratios are 11.5:1, and with port fuel injection compression ratios were 10.2:1.

2) Direct injection utilizes higher fuel pressures at the injectors, and with this higher pressure there is much less of a chance for deposits to build on the fuel injectors.

3) Also with direct injection the probability of detonation has virtually been eliminated because fuel is only introduced into the combustion chamber during the final 20-30 percent of the compression stroke.

Next month we will cover the installation of a catch can to resolve this issue.

QUESTIONS?

Got a question for our Tech Corner expert? Just jot it down on a paper towel or a lightly soiled shop rag and send it to us at *VETTE* Magazine, Attn: Technically Speaking, 1821 E. Dyer Rd., Suite 150, Santa Ana, CA 92705. Alternatively, you can submit your question via the Web, by emailing it to vette@enthusiastnetwork.com. Be sure to put "Technically Speaking" in the subject line.

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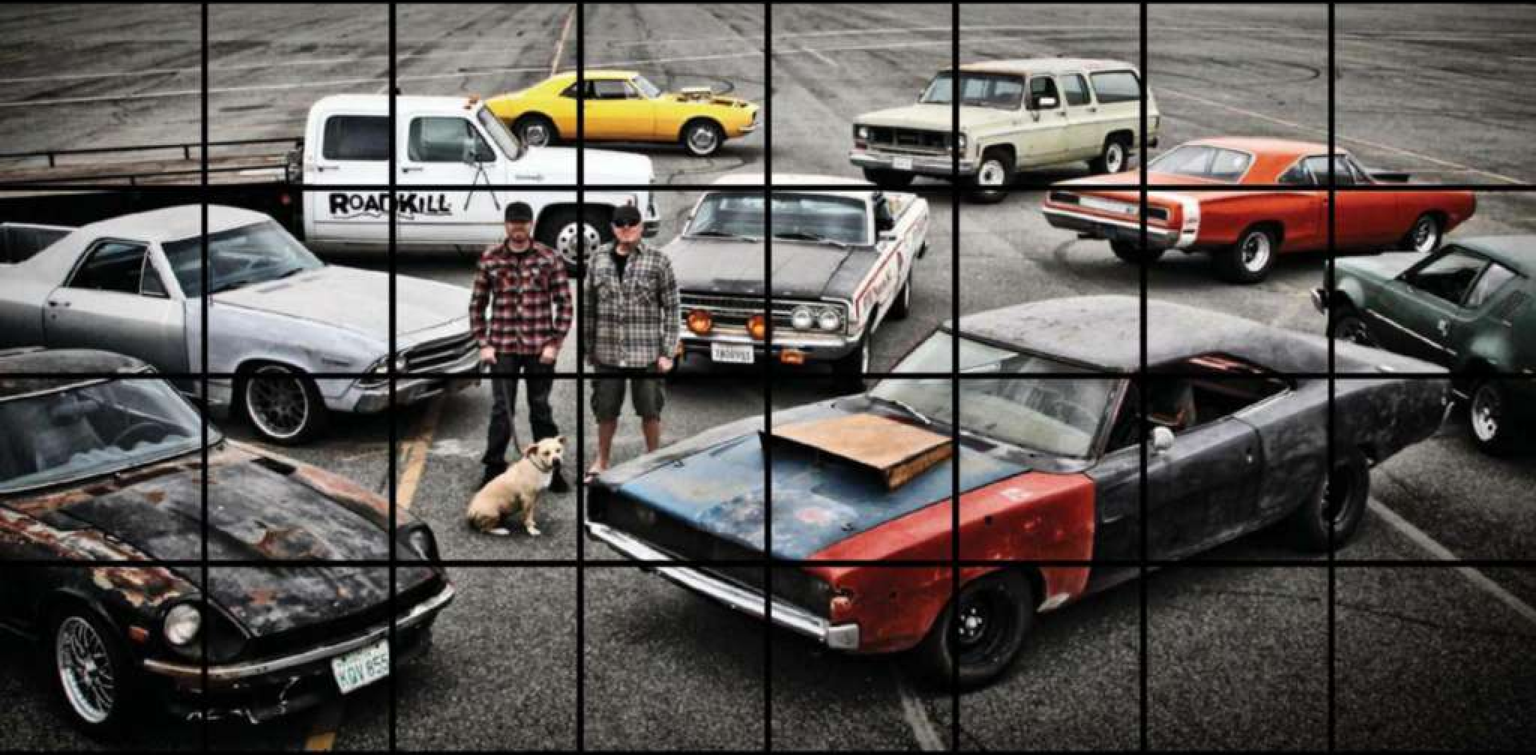

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Brotherly Passion

BROTHERS DARYL AND
DALE COLEMAN ARE LIVING THEIR
CORVETTE DREAM WITH A PAIR OF '61s

BY **WALT THURN**
PHOTOGRAPHY BY **TIM SUTTON**

CORVETTE
CALIFORNIA
UWT 267

Too Hot to Handle

Longtime Corvette enthusiast Daryl Coleman got his passion for Corvettes from his older brother Dale. In 1998, Daryl was searching for a 1964 Corvette at the Pomona Swap meet. He wanted a 1964 Corvette because that was the year he was born. His plans suddenly changed when he spotted this custom-painted 1961 Corvette that you see in this feature. After a close inspection he walked up to the owner and began horse trading to make the buy. The owner wanted $35,000, but settled on $33,000 and Daryl got the car of his dreams. Seventeen years later he still thinks his Corvette is worth every penny he paid for it. Daryl tells Team Vette, "Every time I walk into my garage after all these years it still feels like Christmas morning!"

Underneath the Corvette's beautiful paintwork is a surprisingly stock 1961 Corvette. It is equipped with a code #102 Wonder Bar radio; #468 283ci, 270hp engine with 2x4 carburetors; #685 four-speed manual transmission; and #675 Positraction rearend with 3.70 rear gears. It's previous owner commissioned Tom Evans to transform the Corvette and the process took two years. It features its original frame that was refurbished before reassembly. It also has a set of modified GM disc brakes fitted by Don Caldwell of Caldwell Hot Rods that work extremely well. The custom paintwork was completed by Bill Headly and the graphics were done by Little Louie in Riverside, California. The Corvette sits on 17-inch American Racing Torq-Thrust wheels front and back with General Exclaim tires. Dugans Racing Engines in Riverside, California, did all of the machine work to clean up the original 283-cid block and heads. Woodchuck Racing in Riverside, California, assembled the engine and installed headers with 2 1/2-inch collectors that dump into Flowmaster mufflers. Daryl has not made any changes to the engine since he bought it, because he wants it to remain close

to its 270hp factory rating. The end result is a stunning first-generation Corvette that even after 17 years of ownership still turns heads when Daryl takes it for a weekend spin, and it only shows 12,517 miles on its clock.

The interior features a smaller-diameter, leather-wrapped steering wheel and a custom AM/FM radio that is installed between the seats. The Wonder Bar radio still sits in the dash but is disconnected. The black interior includes original-pattern seat covers and the overall interior is in excellent condition. His brother Dale recently purchased an unrestored 1961 Corvette that is also powered by a 270hp/283-cid engine.

Seventeen years later he still thinks his Corvette is worth every penny he paid for it. Daryl tells Team Vette, "Every time I walk into my garage after all these years it still feels like Christmas morning!"

The Survivor

In 1961, the Saint Louis Assembly Plant produced 10,939 Corvettes. Surprisingly, Ermine White was the most popular choice that year when 3,178 buyers picked that color. In addition, only 2,827 Corvettes built that year were ordered with the option code #468 (283ci/270hp) engine. 1961 was the first year Corvette featured a Stingray rear that would become standard on all 1963-'67 Corvettes. Longtime Corvette enthusiast Dale Coleman from Glendora, California, began searching for an unrestored Ermine White 1961 Corvette in 1998. The bug bit him after his brother Daryl purchased a red 1961 mildly customized Corvette that same year. He never gave up on his dream even as he completed the restoration of a 1965 air-conditioned roadster (which he still owns). Since 1998, Dale has bought and sold several Corvettes, but he still yearned to find an original 1961 solid axle.

Shortly after Christmas 2014, he received a phone call from his friend Don Caldwell, owner of Caldwell Hot Rods in Upland, California. Don found this featured, unrestored 1961 Corvette on Craigslist with 45,000 original miles on its clock. It was located in the middle of Washington state. After Dale reviewed the Craigslist photos of the car he was ready to buy it without inspecting it. However, his gearhead friends recommended against that move. They told him they knew someone who lived near the Corvette's location who agreed to look it over. The report was very positive and Dale learned that this 54-year-old Corvette was on its third owner. It was a true survivor. After some friendly back and forth negotiations on the phone, a price was agreed upon and Dale became the Corvette's fourth owner. An auto hauler friend was transporting cars from Seattle to California

and Nevada and had one opening on his truck. He agreed to pick the Corvette up and transport to Dale's home. Fifteen days later his dream Corvette was sitting in his driveway. He later learned that a Chicago collector was flying to Seattle to buy the car. The potential buyer was only 2 hours away when the owner accepted Dale's offer! It was meant to be.

Dale discovered that the Corvette began its life in Maryland and was sold to its second owner who lived in Pennsylvania. The Pennsylvania owner sold the Corvette to the Washington state owner. So it was easy to trace the Corvette's ownership chain. The car has not undergone any restoration and the original paint has some chips, but nothing significant. All of the chrome is in good condition and as you can see in the photos the interior is in exceptional condition. The red carpet is faded, but that is no surprise after 54 years of use. It is factory equipped with a code #102 AM Wonder Bar radio, #685 four-speed manual transmission, and #675 Positraction axle with a 3.70 gear. Positraction was required for cars

ordered with the four-speed manual transmission. Everything under the hood is original and it is powered by a sweet-sounding, dual-quad 270hp engine. Dale only occasionally drives his rare find to local car shows and to friends' homes. His next goal is to transport his Corvette to Bloomington Gold and have it judged as a Survivor. Based on the way this beautiful Corvette looks he has our vote!

Daryl and his brother Dale like to travel together with their two '61 Corvettes. They enjoy attending swap meets and cars shows that are held every weekend in Southern California. It's a great family experience for these two brothers and that is what the Corvette hobby is all about. We wish them both many more years of enjoying their awesome twin '61 Corvettes. **VETTE**

Everything under the hood is original and it is powered by a sweet-sounding, dual-quad 270hp engine. Dale only occasionally drives his rare find to local car shows and to friends' homes.

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C3s ARE OFTEN SUBJECT TO RIDICULE, BUT WITH 700 HP, A SIX-SPEED, AND A ROAD RACE SUSPENSION ON TAP, HAROLD CHAPMAN'S '68 VETTE ISN'T ONE OF THEM

The brutality knows no bounds. To paraphrase recent message board chatter on a popular Corvette forum, "a rubber bumper C3 is worse than a C4." That might not be so bad if the C4 got any respect, but evidently it doesn't. The online bashing intensified: "A rubber bumper C3 Corvette may be the C4 of C3s, but the C4 is still the standard of suckage." Ouch. One brave soul even admitted to wearing a paper bag on his head when driving his C3. Considering these are real comments made by real Corvette enthusiasts, it's obvious that love for third- or fourth-gen Corvettes runs thin, even amongst Corvette guys. As entertaining as it may be to chuckle at the doldrums of Corvette history, the more important question is whether or not there's any way on earth to make these cars cool. Somehow, Harold Chapman has figured out a way to do just that. Throw a 700hp LS7, a six-speed stick, and a Roadster Shop chassis at a '68 Corvette, and suddenly the C3 transforms from the subject of embarrassment to the object of envy.

Granted that the C4 may still be perceived as too much of late-model to warrant any kind of serious restoration investment,

NO LAUGHING MATTER

BY **STEPHEN KIM**
PHOTOGRAPHY BY **THE AUTHOR**

early steel-bumper C3s were blessed with enough muscle car-era DNA to give them some real hot rodding potential. Harold reached this conclusion after running quite a few laps around the autocross in his Pro Touring ’69 Camaro. Not just any Camaro, mind you, but a corner-burning beast fitted with a Roadster Shop chassis and a supercharged LS2. “The Camaro was a lot of fun, but I knew the Corvette was a better platform for putting together a purpose-built autocross and road race car that could also double as a show car,” says Harold. “People think those two don’t go together. They’re either high-performance cars built like junk, or show cars that don’t run. I wanted to build a car that could do everything well.”

Running a successful construction business seven days a week left Harold with very little time to work on his project cars. Bad experiences with several shops prompted him to take matters into his own hands. “At the time my ’69 Camaro was going together, I was also building a ’35 Chevy. I took them from shop to shop all over Austin, Texas, and San Antonio, and got screwed,” Harold painfully recalls. “These places take your car, take your money, take everything apart, then stop working

on them. I got so sick of it that I started my own shop, Customs and Hot Rods of Andice (CHRA). One of our first builds was my '33 Ford roadster, which won the Goodguys Most Beautiful Street Rod award and was a finalist for the America's Most Beautiful Roadster award at the Grand National Roadster Show."

Although Harold wasn't actively shopping for a Corvette, the opportunity unexpectedly fell in his lap. "A guy I worked with said he had a nice '68 Corvette for sale. He was about to get started on a construction job for me in Mexico, so I figured if I screwed him over by not buying the car from him here then he might get mad and screw me over in Mexico," Harold jokes. "I've had every generation of Corvette, and I've always liked the '68 models because they're not that popular. I bought the car sight-unseen, and it turned out to be a complete basket case. Someone decided to sandblast the car without disassembling it, so there was sand in the rearend and suspension."

Not surprisingly, CHRA Shop Manager Michael Kaiser remembers the Vette's sad condition in greater detail. "The car had been sitting outside with no cover on it for a long time, so all the fiberglass got nasty. As it sits today, the doors and T-tops are the only original pieces left on the car," he explains. After cutting the car down to its bare bones, significantly modifying its body parts seemed like the only logical course of action. "The front

and rear clips are custom, hand-laid fiberglass pieces. The wheel arches have been raised on all four corners to give the car an aggressive stance while retaining a tight turning radius. The bumpers have been tightened up and blind-mounted to the body, and the fender gills are custom as well. Out back, the rear lower valance was moved up 1.5 inches, and there's also a custom spoiler that looks more aggressive. The Monza-style fuel cap, and the fiberglass work all around it, is also custom. In the front, there's a one-off hood, and a custom firewall and inner cowl covers."

If the Vette was destined to be nothing more than a show car, the body modifications might have ended there. They didn't, however, because the car's primary mission involved embarrassing the competition at the track. As such, the CHRA crew extensively modified the floorboard to make room for the Tremec six-speed trans, to increase legroom, and to accommodate the custom aluminum wheeltubs. After spraying the finished body in a custom CHRA silver blend, it was bolted down to a Roadster Shop chassis fitted with billet control arms and Penske coilovers at each corner. While anyone can bolt on a bunch of fancy parts, maximizing the potential of any chassis requires some extra commitment. "We spent a week with Mike Dusold at Dusold Designs to scale the car, set the alignment, and fine-tune the chassis. We dialed in lots of negative camber in the front and back

to enhance cornering grip," Michael explains. CHRA took measures to account for just about any possible scenario. "As the body and chassis were going together, we took the springs and shocks out of the car and moved the suspension through its entire range of travel to ensure that there were no clearance issues. You can actually drive this car on the bumpstops without tearing up the wheelwells or wheel arches."

Since man does not live by cornering grip alone, CHRA dropped a potent LS7 small-block between the Vette's framerails. Enhancements include ported factory cylinder heads, a mild hydraulic roller cam, and custom CHRA long-tube headers and side pipes. The combo puts down nearly 600 rear-wheel horsepower on the chassis dyno. Transmitting all that torque down the driveline is a Tremec T-56 six-speed trans, and a Roadster Shop aluminum 9-inch centersection. Furthermore, to make sure that the powertrain components look just as good as they perform, the engine and trans were completely deburred before spraying them in a slick satin finish.

Talk is easy, but backing it up with real-world results is another thing entirely. Proving that the Vette is every bit as capable as promised, it took home the Street Machine class win on the Goodguys autocross at the 2015 Lonestar Spring Nationals. Smoking the closest competitor by over a second on its maiden voyage was merely icing on the cake. A testament to what a nice guy Harold truly is, he's giving a fellow enthusiast the opportunity to live his dreams in the Vette. "I met Chris Jacobs and his wife, Lynda, at the Goodguys Show in Iowa several years ago. He was racing his Chevelle and I was racing my Camaro," Harold recalls. "When we started talking about the '68 Corvette I was building, he got very excited and said that was his dream car. Chris was such a nice and helpful guy that I agreed to let him drive my Corvette when it was done. I told him 'I will make the car look good if you will make it go fast.'"

Mission accomplished. With one autocross win and more on the way, Harold Chapman, Michael Kaiser, Chris Jacobs, and the entire CHRA team are now looking forward to competing on road courses. Who knows, maybe Harold's C3 will even embarrass some mid-years, C5s, C6s, or C7s along the way. When that day comes, they're going to be the ones wearing paper bags on their heads, not Harold. **VETTE**

ROBERT MCGAFFIN

PROVING THAT THE VETTE IS EVERY BIT AS CAPABLE AS PROMISED, IT TOOK HOME THE STREET MACHINE CLASS WIN ON THE GOODGUYS AUTOCROSS AT THE 2015 LONESTAR SPRING NATIONALS. SMOKING THE CLOSEST COMPETITOR BY OVER A SECOND ON ITS MAIDEN VOYAGE.

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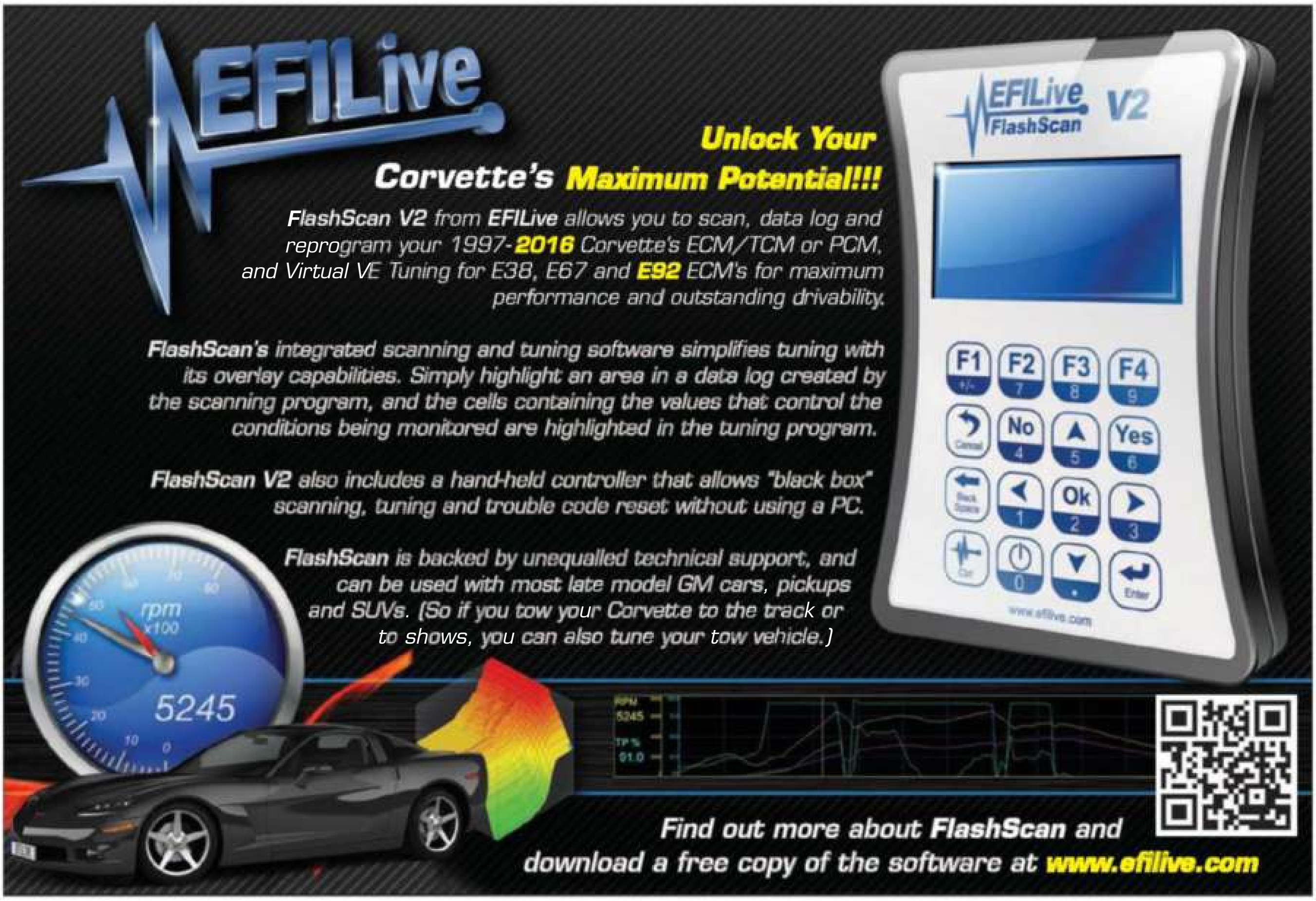

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WHO'S ON FIRST?

VENGEANCE IS, THAT'S WHO ... AND THEY'VE GOT A 1,000-RWHP STINGRAY TO PROVE IT

JUSTIN CESLER WORDS & PHOTOS

Who, what, when, where, why. That's the goal of every story and we're going to just jump in now and get it out of the way. Ron Mowen, 2014 Corvette Stingray, Corvette delivery day 1, Vengeance Racing, because Vengeance Racing. There, that's about all you really need to know about that. If you have an Internet connection and decent eyesight you've already seen this little red Corvette ripping it up on the dyno, laying claim to the "first 1,000-horsepower C7" title, and even riding with some, uh, "beautiful" passengers on YouTube. You've also no doubt seen it on the forums. But while you may know a lot about the accolades and the quick facts, you may not know a lot about what it took to get here.

The real story starts in November 2013, as the entire automotive world waited for the "very first" C7 Stingrays to make their way into public hands. Private owners across the country stalked their local dealerships to take delivery of new C7s and many of the first lucky ones were quickly squirreled away to private, heated garages, never to be seen again. Ron Mowen, however, wasn't about to do that. Oh no, with just 8 miles on the odometer, Ron sealed his Corvette's fate with a massive burnout in the parking lot of his local dealer. Yep, that's how Vengeance rolls. Burnouts in the dealership. From there, with the engine and drivetrain "properly broken in" it was direct to the dyno for some baseline numbers and some poking around in the new ECM. Remember, at the time, no one had tuned a C7 before and according to many, it was "untunable" thanks to the direct injection and the E92 ECM.

Twenty-five additional horsepower later, and with some 34 extra lb-ft of torque on tap, Vengeance PCM tuner Mike Carnahan proved that not only was tuning possible, but it was very worthwhile.

Cool, so they did a burnout and dyno'd a new C7, that's not a big deal. Well, maybe not, but on day two, Vengeance Racing technicians tore the engine down to the short-block and started work on installing a new camshaft kit to maximize performance and test the new LT1 in the real world. That kit included a custom Vengeance Racing-spec'd camshaft (don't look for the published specs, these guys like to keep some secrets. Can you blame them?!), a dual valvespring kit, hardened pushrods, new lifters to remove the stock Displacement On Demand system, a COMP Cams VVT Phaser Limiter kit, and a set of upgraded trunnions for the rocker arm system. Add in a set of long-tube headers or two to get the newfound air and fuel mixture out of the way, and Vengeance was ready to rock it out on the dyno. Day two and the Stingray was pumping out 511 rear-wheel horsepower and thumping along with an all-new direct injection-compatible camshaft kit. As you can see, this wasn't your old-school (if we can call the LS old-school) quick camshaft swap, as the new LT1 engine demands more parts, more time, and more care to make it all work. But this is what being on the cutting edge looks like, and it has to happen fast!

On day three, the crew rested. And posted on the Internet. Actually, that's mainly what they did.

Then came the nitrous. You see, this is a crew that demands big power, not just for Internet glory but for runs up and down (and up and down and up and down) their local stomping grounds. With a hit of the giggle gas from a newly developed Stingray-specific Nitrous Outlet kit, the C7 pumped out an amazing 739 rear-wheel horsepower and 739 lb-ft of torque. That made it not only fast, but also the most powerful C7 in the world, although the competition for the top dog spot was literally changing by the hour.

Then came the blower. Yep, the camshaft was cool, the bolt-ons were helpful, and the nitrous was nice, but the Vengeance Racing crew wasn't stopping there. It was supercharger time, and East Coast Supercharging (ECS) had everything they needed, including a black Novi 1500 supercharger head unit, to get up and running fast. On 14 psi of boost – what, you didn't expect some stock pulley stuff here, did you? – and a little bit of methanol injection from AlkyControl, the still fresh C7 laid down 890 rear-wheel horsepower and 743 lb-ft of torque, making it the – you guessed it – most powerful C7 in the world.

Then came the nitrous, again. And with all of the boost, and all of the nitrous, and all of the methanol, and some of the race gas, this C7 became the very first Stingray to break the elusive 1,000 rear-wheel horsepower barrier. It made 1,018 to the rear wheels, if you're wondering, and it did it with essentially just five major modifications. That means Vengeance Racing cracked 1,000 horsepower with a stock bottom-end LT1, on a stock clutch, with a stock drivetrain, and stock injectors! And it wasn't even March 2014 yet. Most

Most other people on the streets hadn't even seen a Stingray in the wild and the Vengeance crew is busting out 1,000-horsepower dyno pulls, crazy street videos, and 10-second slips from the track.

other people on the streets hadn't even seen a Stingray in the wild and the Vengeance crew is busting out 1,000-horsepower dyno pulls, crazy street videos, and 10-second slips from the track. Oh, you thought this was just a dyno queen that wouldn't run a number? Yeah, we didn't think you did.

Then came the half-mile, where the Stingray backed up its impressive traps at the track with an even more impressive 171-mile-an-hour half-mile speed. And then came the fun runs, and then the street runs, and then the photo shoots, and then the sale. That's right, this story doesn't end with Ron driving into the sunset, keeping his prized possession for the rest of time. You see, this was and always will be about innovation, growth, and firsts for the Vengeance Racing team, and once it's been done, and they've learned all they can, it's time for something new.

And then came the Z06… **VETTE**

TREND SETTING—PART 12

A LOOK BACK AT CHEVROLET'S EXPERIMENTAL, PROTOTYPE, CONCEPT CAR, AND SHOW CAR CORVETTES

SCOTT TEETERS WORDS | ILLUSTRATIONS
PHOTOS COURTESY OF **GENERAL MOTORS**

General Motors makes hundreds of kinds of cars and trucks. Some sell hundreds of thousands of units a year, which makes Chevrolet's Corvette a complete enigma. Given the small number of Corvettes sold every year, it is a modern American manufacturing miracle that the car survived for 61 years.

The Corvette was "officially" born on January 17, 1953 at the GM Motorama Show at the Waldorf Astoria Hotel, in New York. To understand the impact of Harley Earl's two-seater sports car concept car, you have to look at typical cars of 1953. The car was low and sleek, and wasn't over festooned with styling gimmicks. Based on the response from attendees, Chevrolet rushed the car into production, and the rest is history.

Today, the Corvette is GM's flagship car. When Chevrolet unleashes a new Corvette, the automotive world stops to take notice. But things were not always this way. Up to the C4, there were many inside GM that wanted to see the Corvette go away. For the first 20-some years, the car suffered from an identity crisis. Inside GM there were always those that wanted the Corvette to be something different; a lightweight sports car, a mid-engine car, a rear-engine car, a four-seater personal luxury car, powered by a boxer-type flat-six, Wankel rotary-powered, turbocharged small-displacement hemi-headed double-overhead cam powered, and even an all-aluminum car. Chevrolet kept the loyal faithful stoked with two or three experimental, prototype, show car Corvettes per year. From an enthusiast's perspective, this was endlessly fascinating.

This is Part Twelve of a chronological look back at Chevrolet's high-profile experimental, prototype, concept car, and show car Corvettes. The three C3 models each explored new possibilities to push the Corvette's design envelope. The 1970 Scirocco and 1973-1974 Mulsanne continued Bill Mitchell's theme of repurposing and actually driving show cars. What started out as a 1968 Corvette off the assembly line was now in its second and third incarnation, each sporting a potent big-block and unique hoods to accommodate it. The 454ci V-8 in the Mulsanne was so potent, it led Bill Mitchell to proclaim it the "greatest Sting-ray ever." This was a stark contrast to the much smaller cube turbocharged prototypes that Chevrolet dreamed up from 1978 to 1979. The oil crisis, emissions, and more government regulations were putting a stranglehold on the automotive industry, but Corvette designers were determined to push through. We are so glad that they did, as many muscle cars did not survive. And six years later Callaway debuted its turbocharged Vette … and 30 years later forced-inducted V-8s were built in-house with the introduction of the C6 ZR1.

Bill Mitchell's 1970 "Scirocco" Corvette Show Car

The Aero Coupe Becomes the Scirocco

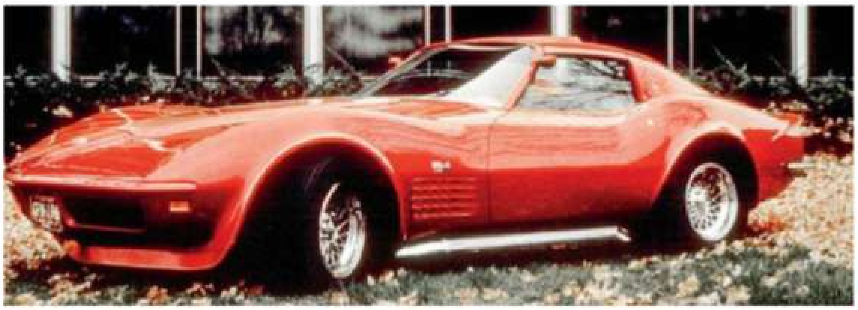
It is not known when a lowly 1968 Corvette coupe was pulled off the St. Louis assembly line and given a most unusual life. Corvettes are built to be driven and enjoyed by customers; however, this Cinderella Corvette was destined to be a beauty queen in a gilded cage. The designers and craftsmen at Chevrolet Styling were capable of beautiful work. They could have broken off and become their own custom coachbuilders. We told you about this Cinderella Corvette's first incarnation as the 1969 Aero Coupe, in Part 10 of

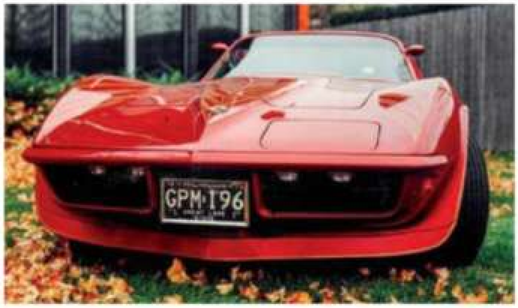
our series. The candy apple red Aero Coupe was dripping with custom touches, previews of the 1970 model and powered by a 427 ZL1. It was a screamer for sure.

Senior VP of Styling Bill Mitchell would often treat his show car Corvettes like a "write-on/wipe-off" board. He would direct the construction and look of one of his concept show cars, display the car for a while at the big car shows and races (also use them as his personal ride when he could), then send them back into the shop to be stripped, cut up, and made into something else. While Corvette fans and historians, would have preferred Chevrolet had saved everything, Mitchell saw these cars as tools to be used to try new ideas and concepts to gauge the public's reaction. He wasn't building cars for posterity and history. The running Mako Shark II is a perfect example of Bill's attitude towards his show cars. As awesome and as groundbreaking as the Mako Shark II was, it went into the shop, got cut apart, and made into the Manta Ray. How cool would it have been to have the Mako Shark I, II, and Manta Ray all together?

The revised Aero Coupe wasn't radically different, but enough to be deserving of a new name, and Mitchell chose "Scirocco." It's too bad that VW used the name for its 1974-1981 Rabbit-variant, the VW Scirocco, which was a neat car, but now the name "Scirocco" is forever linked to a VW and not Mitchell's custom Corvette show car. [Scirocco, or sirocco means: a hot wind, often dusty or rainy, blowing across North Africa.] While show cars are typically slightly over-baked, the Scirocco would have made a nice mid-cycle refresh for the Corvette. Most daring was the hood/nose treatment. Small-block Corvette hoods from 1968 to 1972 were "nice enough" but rather unremarkable, especially compared to the 427/454 hood. The Aero Vette wore a 427 L88 hood with the extra dome for the cold-air cowl-induction. Mitchell took the pointed shape of the typical small-block hood design, raided it up enough to clear the 427 ZL1 big-block, then moved the shape forward past the hood and into the nose clip. At the base of the hood was a chrome grille that could have either been a vent or cold-air intake – it was never documented as to its purpose. The raised center section was decorated with gold pinstripes in a feather-like design, not unlike what we saw on the mid-'70s Trans Am Firebirds. The same feather-style pinstripping was on the top inside of the front fender humps that then flowed back along the tops of the doors.

The metal front bumper was painted the same dark ruby red paint as was the rest of the car and made the bumper totally blend. The Aero Coupe's large, separate racer-like chin spoiler was replaced with a deep spoiler that wrapped around the front edges of the front wheel opening and blended with the wheel flares. The Aero Coupe's side pipe covers were a variant of the production '69 side pipes. The Scirocco got a set of Manta Ray-style side pipes that look more like lakes pipes from the 1950s lowriders. The Chaparral-style





lace aluminum wheels from the Aero Coupe were too cool to lose and stayed on the Scirocco. The only other change was to the one-piece, lift-off roof panel. Bill Mitchell show cars all the way back to the Mako Shark I often had a periscope-like rearview mirror integrated into the roof.

The Scirocco wasn't just a static show car – it was a runner. For nearly four years the Scirocco served as a pace car for Can-Am races. This was during the days when the orange ZL1-powered McLaren monsters ruled the Can-Am road racing series. Mitchell thought it was pretty cool that the same basic engine he used in his Scirocco Corvette, powered the McLaren racers. No argument from me, Bill!

Bill Mitchell's 1973-'74 "Mulsanne" Corvette Show Car

The Greatest Stingray Ever?

Only Bill Mitchell could get away with this. Believe it or not, this is really a 1968 Corvette. After several years of duty as a pace car for the brutish Can-Am racing series, Mitchell decided to call the Scirocco back into the shop for a major refresh. Bill loved fast cars, racing, and European culture. He chose the name "Mulsanne" after the 3.5-mile long straightaway that's part of the 24 Hours of Le Mans race. After all, one of John Greenwood's BFGoodrich Stars and Stripes ZL1 Corvettes went 215 mph on the Mulsanne Straight at Le Mans, so why not name his latest incarnation the "Corvette Mulsanne?"

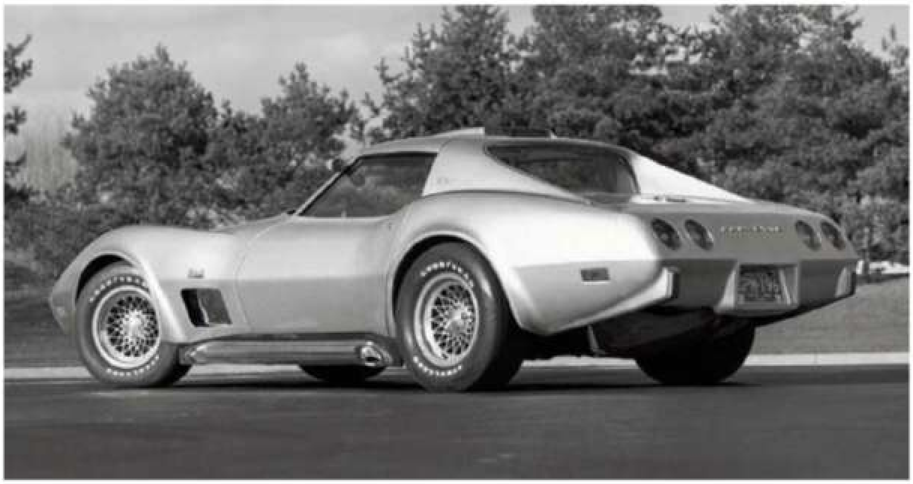
There's a lot of carryover from the Aero Coupe and Scirocco in the Mulsanne, but plenty new to look fresh and up-to-date. The carryover items include the curved A-pillar, the high-mounted rear-view mirrors, the periscope one-piece roof, the Manta Ray side pipes, and the Chaparral lace wheels. The big-block ZL1 was also a carryover, but with a few interesting upgrades. The block was bored out to 454 cid and an experimental Rochester fuel-injection system was installed. Imagine that for a moment – an aluminum big-block fuelie. That's why Bill said the car was "loaded for bear!"

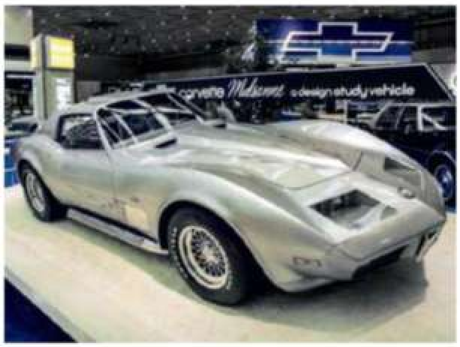
By 1973, crash bumpers were mandatory on all cars and without a doubt, the Corvette designers were the best at complying with the new regulations more than anyone in Detroit – period! While every other car was wearing big, protruding metal railroad ties, the Corvette never looked sleeker. The Firebird came in second place in the bumper wars, but even the Bird's covers weren't as graceful and integrated as the Corvette's. So, the Scirocco was refreshed with 1974 Corvette front and rear bumper covers, as well as the updated front fender vents.

The major change on the Mulsanne is the enclosed headlights and unique hood. Plexi-covered headlights were still illegal, but were so cool for show cars and rectangular headlights would soon be allowed. The hood was a piece of art. Where the Scirocco took the 1968-'72 small-block "V" hood shape forward and into the nose clip, the Mulsanne took the same raised shape, moved it back to the hood, and added twin scoops to both sides of the raised center section. This would have been a sweet option for the Corvette or a nice aftermarket hood.

Corvettes always look good in bright metallic silver, the color seems to reflect the lines and curves exceedingly well. The Mulsanne was silver inside and out. The interior was trimmed in silver leather and had fixed seats and adjustable pedals and steering wheel. Bill wanted the speedometer to look like a gunner's site. Get the military motif here? Gunner's site speedometer and a periscope rear-view mirror. No machine guns in the front grille? Perhaps what he really wanted was a four-wheel, polished aluminum P-51 fighter plane! And to complete the project, Mitchell had finely detailed pinstripe flames painted on to the nose and hood that started around the new round Corvette nose badge and flowed back and split around both sides of the raised center section leading back to the twin scoops. Similar pinstripped flames graced the rear deck and wrapped around the fuel cap door with its crossed flags. And lastly, pinstripped flames ran out from the front fender vents. "ZL-1 / Can-Am" badges were placed above the fender vents.

The Mulsanne Corvette didn't see much duty after its initial debut. There's very little about the car on the Internet and the GMHeritageCenter.com website only has a short paragraph and one sentence about the car. It has never shown up at the big auctions, like the Harley Earl or Semon "Bunkie" Knudsen custom Corvettes. Bill Mitchell called the Mulsanne Corvette, "The greatest Stingray ever." Coming from the man that guided the 1959 Stingray Racer, the production Sting Ray, and the series of Mako Sharks, that's a bold statement. Hyperbole? Possibly. If the Mulsanne survived it would have been seen as part of a personal collection. So, it's safe to assume that it did not survive. What a shame for a Corvette that had three unique lives.





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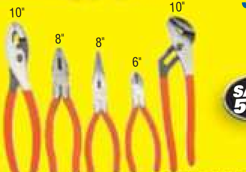

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Chevrolet's Experimental C3 Turbo Corvettes

Thirty years before the C6 ZR1, Chevrolet was seriously considering a "turbo" supercharged Corvette

"Supercharging" goes all the way back to 1860 when the Roots brothers patented a device to increase the amount of air injected into a blast furnace. The turbocharger was patented in 1905 by Swiss engineer Alfred Buchi and first appeared on French World War I airplanes. In 1918, General Electric used a turbocharger on their V-12 Liberty aircraft engine, proving the system's ability to compensate for low air pressure at high altitudes. GE coined the expression, "Turbosupercharging." The first turbocharged cars were built by GM and were options on the 1962-'63 Oldsmobile F85/Cutlass and the 1962-'64 Corvair Monza and 1965-'66 Corvair Corsa. But GM learned that a bigger engine was the easy way to big power, and turbocharging was history. That is, until the horsepower party came to a screeching halt in the early 1970s.

Between insurance rates and exhaust emissions, "performance" quickly became a dirty word. And when the 1973 Arab Oil Embargo hit, it was R.I.P. performance cars. Fortunately, because the Corvette had a strong following and was selling better than ever, the Corvette was a survivor. But Corvette designers and engineers hadn't given up on performance.

The first turbocharged Corvette was never shown to the public. In 1978, Gib Hufstader built a turbo system that used a Holley carburetor inside a pressurized box. All of the linkages and shafts had to be sealed, otherwise gasoline would blow out all over. When the system worked, it was a tire burner, but ultimately the car caught fire and burned to the ground!

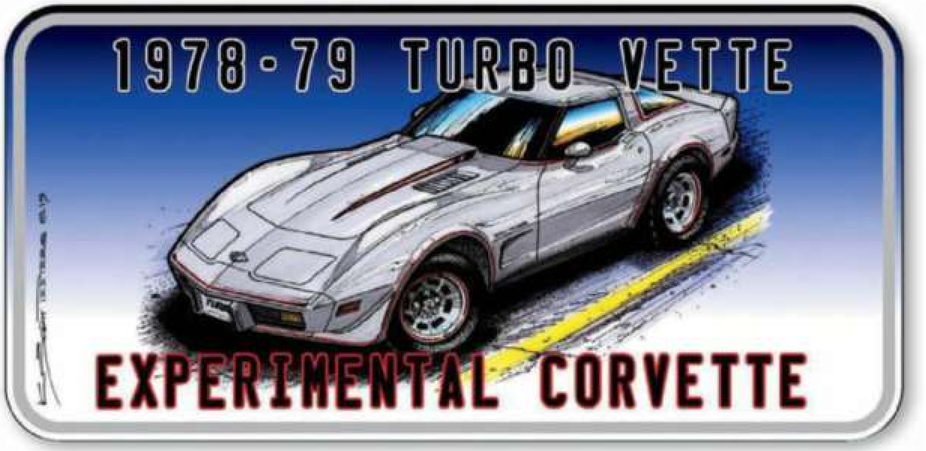
The 1979, "Phase II" Turbo Vette used a modified L82 with a milder L48 camshaft, and an AIResearch T3 turbocharger controlled by a wastegate with 7 psi of boost through a Rochester throttle-body injection system. This setup used a Delco controller for ignition timing and a knock sensor from Buick. Chief Engineer Dave McLellan felt that because of the lack of a sophisticated spark and fuel management system, the setup wasn't ready. To run right, the car needed a steady diet of 103-octane gas.

However, the silver Phase II car looked "production." The hood sported louvered air vents on both sides of the hood dome and mild pinstriping on the hood, front spoiler, around the wheel openings, along the side windows, and around the rear glass. A second version had a wild graphic treatment. The raised dome of the hood was burgundy that wrapped around the top of the doors, B-pillar, and rear deck. The color break between the burgundy upper stripe and silver body color had thin red and orange stripes. Recaro seats were black with yellow, orange, red, and burgundy transverse stripes. Turbine-style wheels were shod with fat Goodyear Eagle GT tires. Many called it garish. A few magazines tested the car and were disappointed that it wasn't that much quicker than a stock Corvette. With 280 - 290 hp on tap, it should have been a good ride. Perhaps they had unrealistic expectations. Another combination was tried using a turbocharged V-6. The idea was that the V-6 would improve gas mileage and the turbo would pick up the missing cubic inches. But the concept went over like a belch in church!

A third turbo car, called the "Turbo Vette 3," was the most refined of the turbo Vettes. For this experimental, Chevy engineers used an all-aluminum 350 engine with an AIResearch turbocharger, an integrated wastegate that limited boost to 7 psi, and throttle-body fuel injection. The throttle-body fuel-injection (TBI) system was the key component. The TBI used the old '69 Z/28 dual-quad 302 racing intake manifold with two simple injectors replacing the carbs. This system went into production on the 1982 and 1984 Corvette. For its day, and considering the minimal electronic and computer control nature of the setup, the turbocharged TBI system yielded a nice 30 percent bump in power. The 1981 L81 was rated at 190 hp, so we're looking at possibly as much as 250 hp, maximum – that's back to 1974 L82 level.

The exterior of the car was stock, except for the pearlescent white paint, blue stripe graphics, and aftermarket wheels. The stripe pattern was similar to the Phase II car except that the raised dome on the '81's hood was the pearl white body color and the surrounding top surface of the hood was medium-dark blue trimmed with an outer band of light blue that wrapped along the top edges of the doors and back across the rear deck. The B-pillar and roof were the medium-dark blue and on the rear deck the medium-dark blue covered the right and left side, leaving a wide pearl white section in the middle. On the side fenders, coming out of the vents was a medium-dark blue stripe, trimmed in light blue, with "TURBO VETTE 3" light blue lettering. Like the Phase II Turbo Corvette, the look was definitely in the "garish" range. A preview feature was the hatchback rear glass that would be part of the 1982 Collectors Edition.

"Timing is everything," but at least Chevrolet tried. A turbocharged Corvette option didn't arrive until the $19,995, B2K 1987 Callaway Twin Turbo. Had computer chips and throttle bodies come online sooner, there may well have been a "turbo" option by the late '70s. **VETTE**



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The large multi-colored entrance welcomes Bloomington visitors. When we parked our 2015 eight-speed automatic coupe on Friday, the weather was cool and soggy. Fortunately, the weather cleared on Saturday and like lemmings, Corvettes flooded the Bloomington show field.

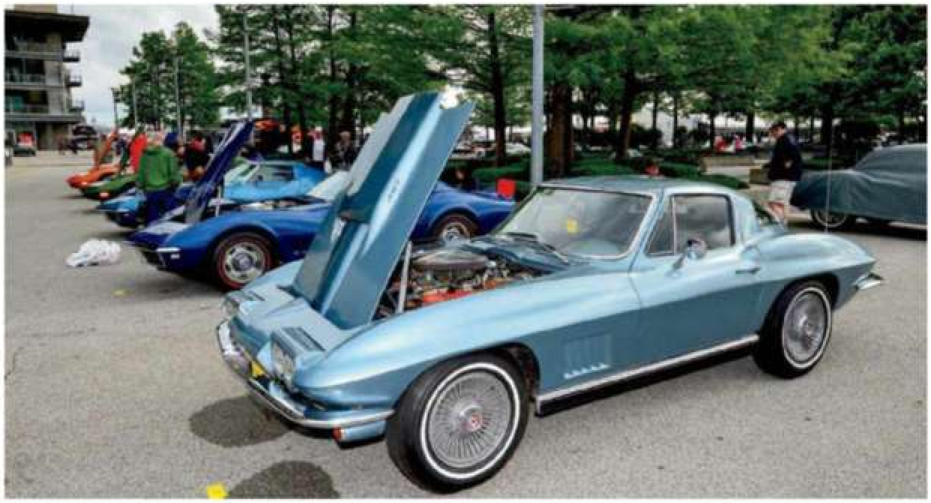
The 2015 Bloomington Gold show was held at the Indianapolis Motor Speedway (Indy) located in Speedway, Indiana, on June 25-27. Speedway is located 6.2 miles west of Indianapolis. Indy is a state-of-the-art racing facility that has a rich motorsports history. Its first race was held at this location on August 19, 1909, and today Indy has become a worldwide racing brand. Bloomington Gold USA owner Guy Larsen made a bold decision to move this annual Corvette event from Champaign, Illinois, to Indy for 2015. But if crowd reaction is any gauge, it looks like he made the right call. Bloomington was able to offer its Gold and Survivor certifications at Indy, plus a host of additional events. The Ron Fellows Performance Driving School offered test-drives in their Z06s on the infield sports car circuit. An all-day autocross was offered for all three days to allow owners to test their Corvette driving skills. The schedule also included multiple parade laps around the famous 2.5-mile rectangular Indy 500 oval. If you had the desire, and cash, to go really fast you could pay $500 for a ride in a two-seat Indy Experience race car. It was a thrill to hear and watch these cars flashing by at incredible speeds.

Even with the smorgasbord of activities offered at the Bloomington Gold Indy event, its Gold certification heritage remains strong and for good reason. The Corvette is rapidly moving through its sixth decade of production. The older the brand gets the more important it is to preserve its rich heritage. Bloomington Gold Corvettes USA was founded in 1973 for the purpose of preserving the Corvette's heritage. In 1978, Bloomington introduced the Gold Certification. A Gold Certification is awarded when a Corvette receives a minimum of 95 points (out of 100) when judged. This award confirms that a Corvette is close to or the same as when it left the factory. In 1990, Bloomington added the Survivor Award, which requires a Corvette to be at least 50 percent unrestored. One year later, Benchmark was introduced. To obtain the Benchmark status a Corvette must be unrestored and have Gold

ANOTHER VICTORY FOR INDY

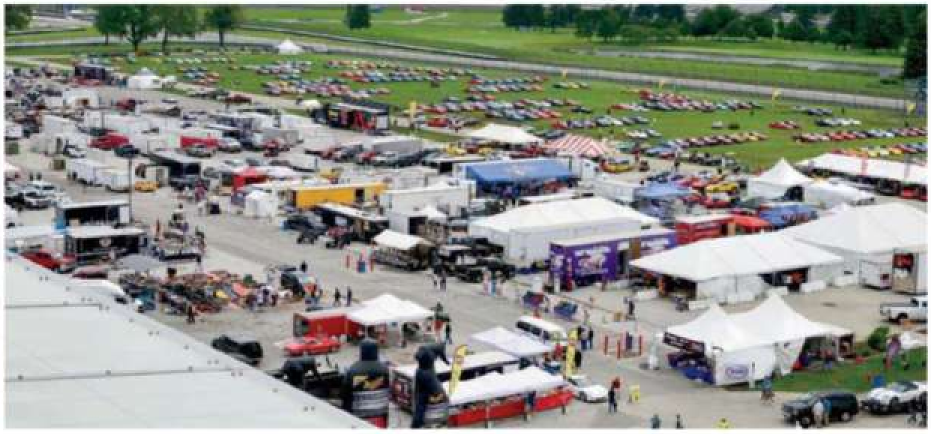
BLOOMINGTON GOLD FINDS A NEW HOME AT THE INDIANAPOLIS MOTOR SPEEDWAY

BY **WALT THURN**
PHOTOGRAPHY BY **THE AUTHOR** AND **MEMORY LANE PHOTOGRAPHY**



Bill Morrison's 1967 Elkhart Blue 435/427 coupe was one of the cars waiting to be judged in the large Survivor field. It received a Gold Certificate on Saturday.

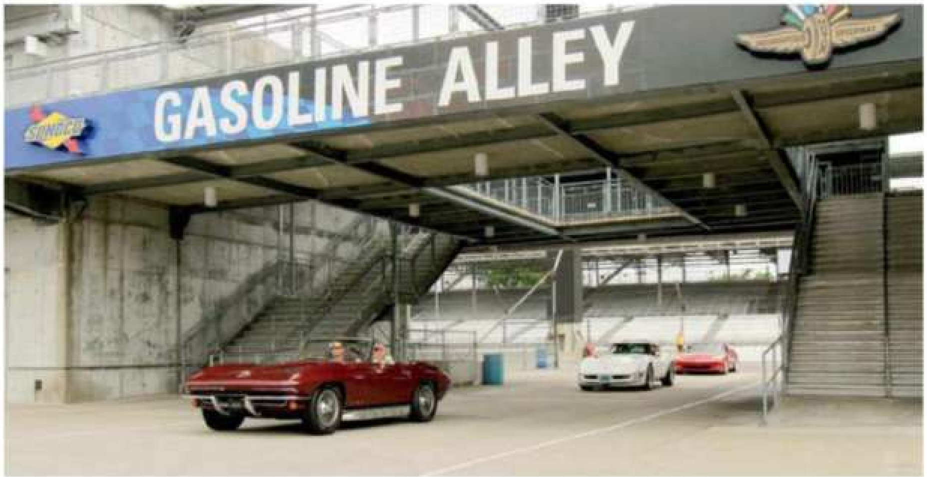
Owner Guy Larsen purchased Bloomington Gold USA from Dana Mecum in 2011. His decision to move the show to Indy in 2015 is a positive move for this historic event.



The large infield at Indy provided plenty of room for Corvette parking, called the Gold Field. The Gold Market near the left front of the photo is for vendors and Corvette parts for sale. Behind the Gold Field is an infield portion of the racetrack where you could ride (or fly!) in a Ron Fellows Performance Driving School Z06.

and Survivor certifications. This year, 93 Corvettes received Gold Certification, 18 Survivors attained Gold, and 20 achieved Benchmark. Judging such a large number of Corvettes requires a cadre of dedicated Bloomington Gold trained volunteer judges. The awards were presented on Saturday afternoon by the judges. Each car crossed the famous yard of bricks in Gasoline Alley before stopping to receive their award. All of these certifications are coveted by owners and for people who want to buy a factory correct Corvette.

Finally, the large Gold Field in the middle of the track was exclusively for Corvettes and it was packed all weekend. A Gold Market was open all weekend so vendors big and small could offer new or used Corvette parts for visitors to buy. The Gold Mine provided a great way to shop for that special Corvette to drive home. The free Gold School offered seminars on a variety of topics from experts in the



MEMORY LANE PHOTOGRAPHY

Throughout the event, Corvette owners were allowed to take their car on a lap around the famous speedway behind a Corvette pace car. They exited the track through the famous Gasoline Alley arch, which exits the pits and that leads to the team garages.

During the Indy 500 and the Brickyard 400 this tall sign near the start/finish line shows the overall positions in the race. Bloomington used this innovative cover to make it clear to everyone attending that this is Bloomington's new home.

Corvette parking stretched almost to the exit of the Speedway's Turn 2. The city of Indianapolis can be seen 6.2 miles east of the track.

Corvettes have paced the Indianapolis 500 a total of 13 times, including 2015. This is confirmed by this impressive display of Corvette Indy pace cars that date back to 1978.

Taking a ride in a two-seat Indy car is probably the most thrilling way to experience the famous Brickyard. Bloomington arranged to have the two-seaters at the event. Each day (weather permitting) two-lap rides were offered for $500. The people exiting the racer had huge smiles on their faces.

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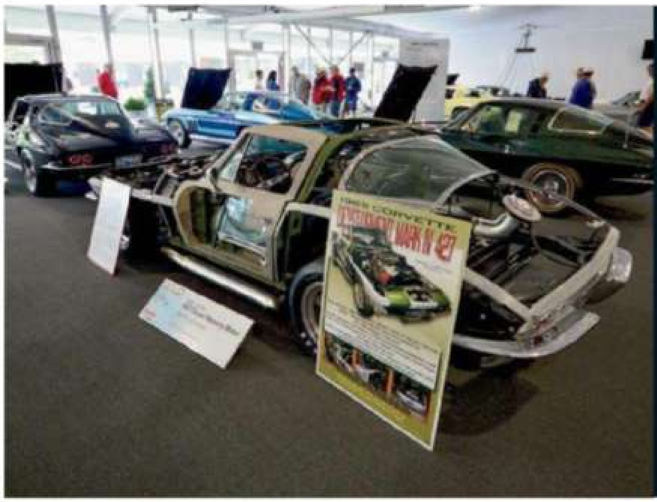
Corvette hobby. After the awards were completed Corvettes lined up for the closing event, the Gold Tour of Corvettes that caravanned through the streets of Indianapolis and ending up at the Metropolis Mall on Saturday night. It was a fun and rowdy event for all who participated.

We asked Guy Larsen for his overall impressions of this year's Bloomington Indy event and here is what he said, "Attendees this year were thrilled with the driving opportunities at Bloomington Gold. Fast laps, autocross, and driving their own Corvettes on the world-famous Indy oval track! It was a car guy and girl's dream!" Bloomington Gold will return to Indy on June 23-25, 2016. Be sure to mark your calendars, and for details visit www.bloomingtongold.com. **VETTE**



Bloomington Gold celebrated the 50th anniversary of the 1965 Corvette. A special exhibit of 16 special 1965 Corvettes was on display in the Gold Collection. A wide variety of Corvettes were in the collection, including this see-through coupe built by Corvette Repair.

Lingenfelter Performance Engineering owner Ken Lingenfelter (left) stands next to multi-time autocross champion Danny Popp. Danny drives Ken's cars in various competition events and was on hand to give free autocross rides around Bloomington Gold's autocross course.

The Ron Fellows Performance Driving School gave free rides on the infield portion of the Speedway's road course in its Z06 school cars. You should have heard the sound of these beasts at wide-open throttle.

Steve and Debbie Berry own this Aztec Copper 1956 Corvette. They brought it to Bloomington seeking to have it recognized as a Survivor. It received a Bronze Survivor Award from the judges.

Jason Sharkey crosses the famous yard of bricks at Indy to receive his Gold Certification award. Chris Chessnoe, Division Director, 1984-Present Certification and Survivor judge presents Jason with his award.

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The Great Race

NINE DAYS AND 2,400 MILES MAKES FOR A GOOD WAY TO SPEND TIME IN YOUR CORVETTE

BY **STEVEN RUPP**
PHOTOGRAPHY BY **TOMMY LEE BYRD** AND **TIM BERNSAU**

Not all races are about speed; many, in fact, are about precision driving. One example of this is the Silver State Classic Challenge held each year in Nevada. Here, drivers try to negotiate a 90-mile stretch of highway in a very precise timeframe. The Great Race is similar, but the precision driving takes place over the course of a week and traverses a good chunk of the U.S. And while "race" is in the title, it's really more of a road rally since the posted speed limit is never exceeded.

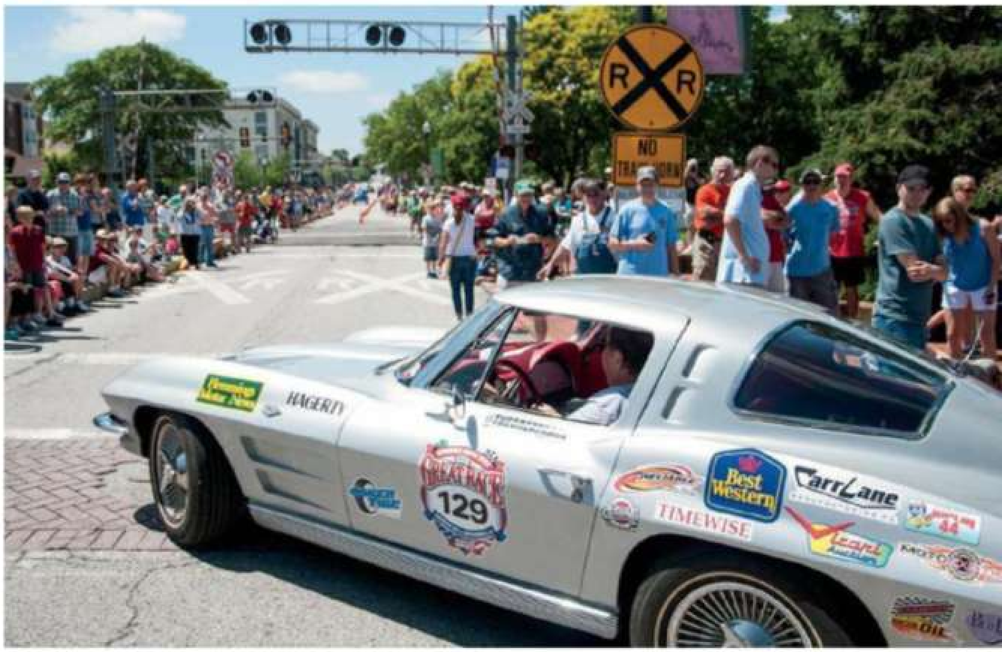
While some might think this event has been going on for 50 years, it really started back in 1982 with Tom McRae and Norman Miller. You see, McRae and his buddy Curtis Graf signed up to run in the Great American Race from Los Angeles to Indianapolis. The prize was touted as $250,000 and the race was only open to pre-World War II vehicles. But, as it turned out, they were the only entrants and the event was a bust. Miller got together with McRae, bought out the original promoter and The Great Race was born. A group of 69 gearheads ran that first year from California to Indy and each entrant ponied up $5,000 for the chance at the $250,000 prize. The event was a success and over the years the rally kept gaining popularity. It was always kept family oriented and

When you're driving across country you're going to hit all sorts of weather. Gene and Becky White, out of Baldwin City, Kansas, ran their 1965 coupe in the Sportsman division. They finished a very strong 17th overall and 7th in their division.

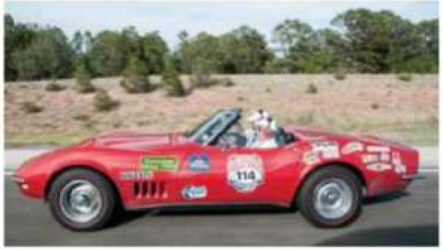
the routes were varied to see all of the scenery this country has to offer. For safety, the major interstates were avoided in lieu of much cooler backroads and byways.

In 2011, under the leadership of Corky Coker (of Coker tires), The Great Race started a new chapter. Many of the rules, and there's a lot of them, are still around. But today, any car 1972 or older can run the event. While some basic modifications are allowed, this run is geared more towards cars still in their original trim. As for that long list of rules? Well, it covers anything that might help a team get from point A to point B. In short, digital is out and analog is king. No GPS, fancy gizmos,

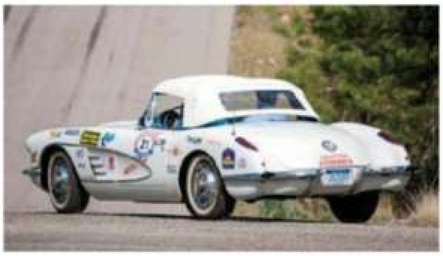
When The Great Race rolls into town it's a pretty big deal and the drivers and cars get the celebrity treatment. Each segment is kept reasonable so that participants can enjoy the drive and stopping points. However, trying to run a 2,400-mile rally down to the second is mentally exhausting. This makes the small parties at the end of each day even more valuable to the drivers and navigators.



The team of Bill and Bev Franks, from Ridgeland, Mississippi, rolled in the Rookie Division. We're sure they learned a ton about how tough navigating this race is. They ended up piloting their 1963 split-window to 76th overall and 20th in the Rookie Division.



The only C3 in the race was this 1968 427 big-block-powered Stingray. The Californian team of Gary Phillips and Steven Meeker ran in the Sportsman Division where they finished 52nd overall and 25th in their division. Best of all, they had a blast doing it!



The oldest Corvette of the six was this 1959 beauty. Driven by Ron Beauchamp, of Iron River, Michigan, and Jacques Beauchamp, of Savannah, Georgia, they finished 21st in the Rookie Division and 77th overall.

or even items like a tachometer (if you have one it has to be covered up or removed). Even your wristwatch has to be approved. No maps, charts, or “dialing a friend” for help. Just a set of precise driving instructions each day, with up to 250 instructions, to help get you to each checkpoint, precisely, on time. Every second you’re early or late earns you penalty points. In order to adjust for newer cars’ better mechanics, there’s even a small handicapping system scaled to the age of the car, so the older the ride, the better the handicap is. The basic entry fee is $5,000, with most of that going into the prize money. To encourage younger teams there’s also an X-Cup division for those between 21 and 25 years old. It’s only $1,500 to run and its main goal is to bring the next generation into the sport. There are also classes for rookies, experts, and those that have won the event before. This way everyone has a chance at a chunk of the $150,000 purse.

For 2015, the race started in Kirkwood, Missouri, and finished up at the pier in Santa Monica, California. Making it extra cool was that the 130 entrants ran the historic Route 66. The oldest car was 1915 Hudson 6-40 while the newest was a 1972 Nissan Skyline from Kanagawa, Japan. The 130 cars included six intrepid Corvettes as well, which,

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given the huge variety of cars in the event, was surprising. But hey, Corvette guys love to drive, so we shouldn't have been shocked that they would be down for a nine-day, 2,400-mile cruise. All six finished the race, which also shouldn't surprise anyone. Oh, and if this sounds like your idea of a good time you need to mark your calendar for 2017, since the 2016 event is already sold out. **VETTE**

Source

GREAT RACE
greatrace.com

The strongest finishing Corvette was this 1965 convertible piloted by James Goode of Jefferson City, Missouri, and Louis Goode of Dallas, Texas. The pair worked the stopwatch hard and were rewarded with a 13th place overall finish. Their 3rd place finish in the Sportsman Division was good enough to put $4,000 in their collective pockets.

The finish on the Santa Monica, California, pier was packed with racers, their families, and fans enjoying the Southern California weather.

Hey, we're all used to driving with jackasses on the road, but when cruising Route 66 it can become much more literal. Side pipes, knock-off wheels, and a big-block under the hood made this green 1965 drop-top one of our favorites. It was wheeled by Forrest and Kathryn Griggs, of Dayton, Nevada, and the couple managed to finish 28th in the Rookie Division and 87th overall.

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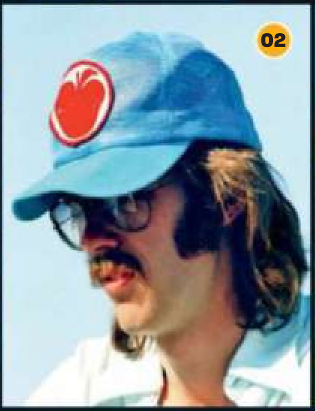


01. John Greenwood's tall lanky frame that was well over 6 feet could always be spotted among the grid crowd. His mood was usually friendly, but intense, because he came to race, not socialize. **02.** Burt Greenwood always supported his brother's racing efforts. He admired John's ability to build and race the fastest Corvettes at the track. **03.** John Greenwood and Alan Barker brought this 1968 T-top Corvette with an L88 engine to the Sebring 12 Hour in 1970. They qualified third in GT (3:00.230) and 27th overall on Sebring's 5.2-mile course. The #4 did not finish due to a broken clutch after completing 159 laps. It was destroyed in a crash later in the season. **04.** Greenwood brought two Corvettes to Sebring in 1971. This one driven by Greenwood and TV comedian Dick Smothers qualified 16th (2:57.770) and finished 1st in GT and 7th overall. The team's second car did not finish. This was the first year that the Randy Wittine-designed American flag paint scheme appeared on the team's Corvettes.

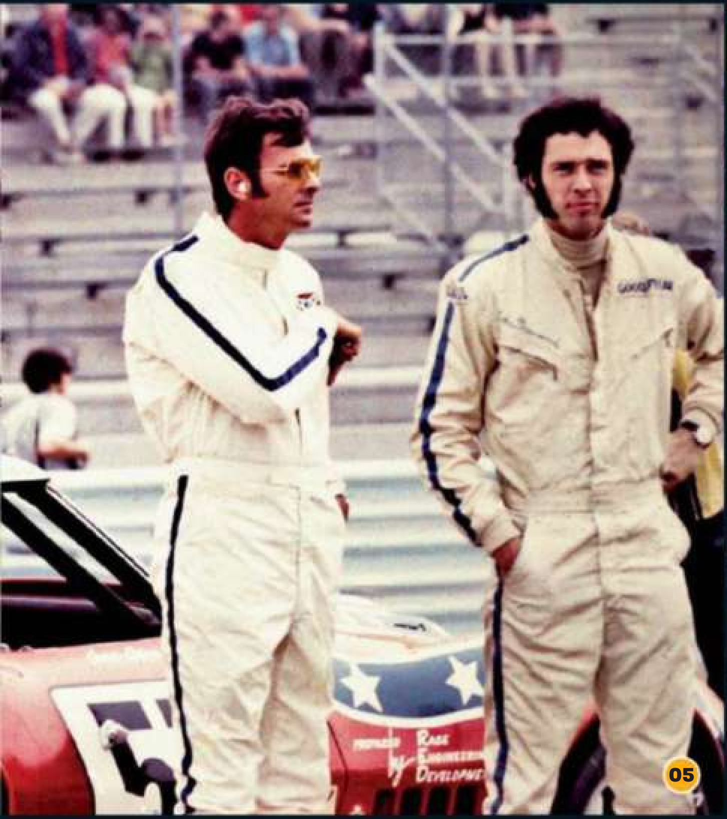
Legendary Corvette racer and engine and car developer John Greenwood passed away at the age of 70. His passion for improving Corvettes drove him throughout his life. But to this author he is best known as a fellow competitor. From 1970-'74 he raced against our L88 Rebel Corvette team at Daytona, Sebring, Watkins Glen, and Le Mans. Both teams had a healthy respect for each other and we called him Rocket Man because he loved to go fast. John grew up in the Detroit area where his father worked at GM's Tech Center. He began building engines in his dad's garage as a teenager so he could go drag racing. His favorite ride was his Satin Silver '64 Corvette that he would race on Detroit's infamous Woodward Avenue. When the C3 was introduced, John was smitten and bought a big-block T-top coupe. He immediately started winning with it at parking lot Solo events. Soon he started road racing the Vette and earned his National Competition license. During this time Greenwood opened an engine building and head porting company called Auto Research Engineering (ARE). His shop was located in Troy, Michigan. His creativity in building race winning engines and fabricating race cars was paying off. He was gaining customers and winning races.

Greenwood's attraction to the C3 Corvette was exactly what Chief Corvette Engineer Zora Arkus-Duntov was hoping to develop with his customers. Zora believed winning on Sunday led to more sales on Monday. GM had a corporate racing ban, but Zora and engineer Gib Hufstader quietly provided winning Corvette race teams with technical assistance. Two of these were the Owens Corning and DX Lube Corvette teams. Both gained racing successes in 1968-'70. By 1970, the DX team was gone. Owens Corning, however, was undefeated in their last 22 SCCA races, which was a record at that time. They were expected to dominate the 1970 A-Production championship race at Road Atlanta. Greenwood's engineering and engine building ability served him well at this race. The upstart "rookie" with a Corvette festooned with a wildly patriotic paint scheme was prepared to do battle. He dominated all of the A-Production Corvettes, including Owens

MAN

JOHN GREENWOOD: CORVETTE RACER, C3 RACE CAR DEVELOPER, APRIL 4, 1945 - JULY 7, 2015

TEXT **WALT THURN** • PHOTOS **WALT THURN**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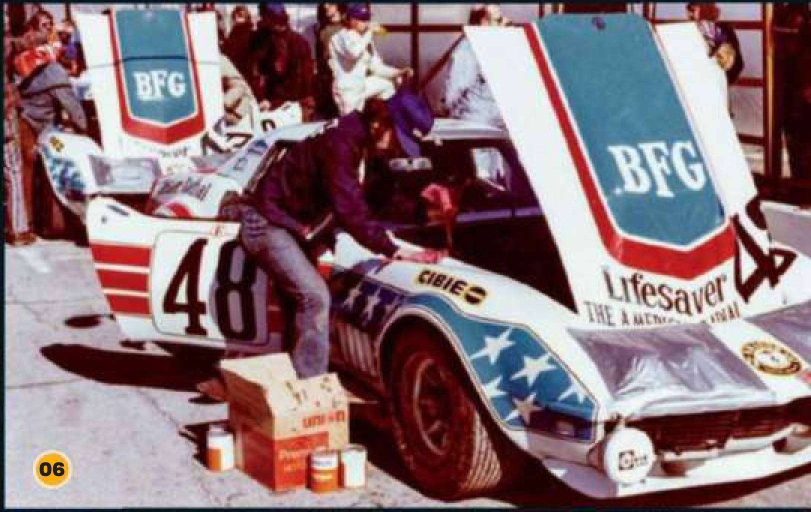

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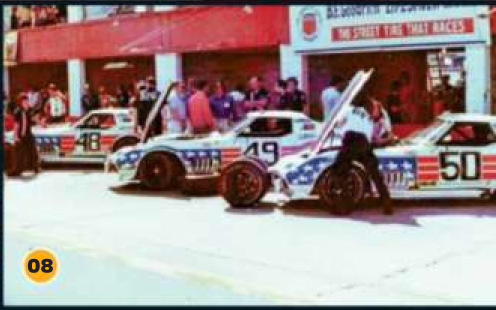


08

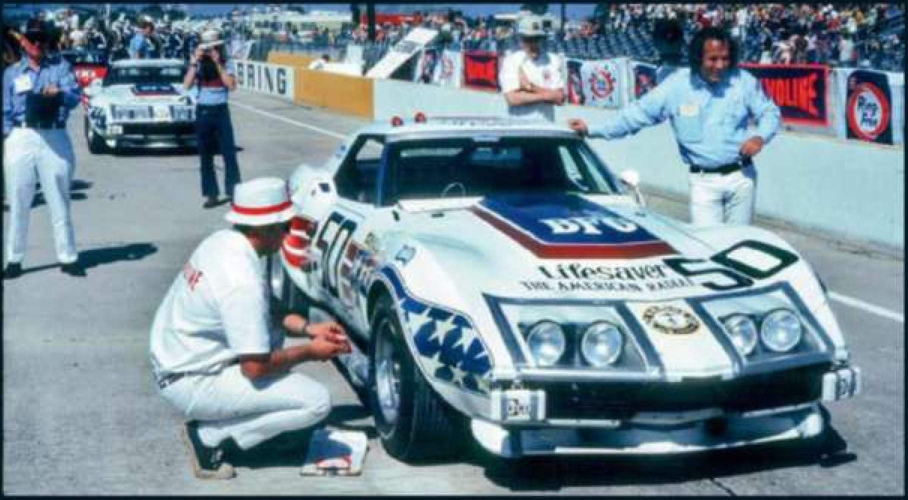
05. **Dave Heinz (left) standing next to his Rebel L88 Corvette on the grid with John Greenwood at the 1971 Watkins Glen 6-Hour race. Both were close to the same height (6'5"). Greenwood/Johnson qualified 17th and finished 5th overall and 1st in GT, Heinz/Yenko qualified 20th and finished 7th overall and 2nd in GT. The two were fierce but friendly Corvette competitors from 1970 to 1974.** **06.** **The country's 1972 fuel crisis shortened Daytona from 24 to 6 hours. This was the first time the Greenwood team raced with BFG street radial tires. The No. 48 qualified 20th (2:04.870) but did not finish. The No. 50 qualified 25th (2:07.810) and also did not finish. The Heinz/Johnson Rebel Corvette qualified 12th (2:00.080) and finished 8th overall, 1st in GT on Goodyear racing radials. This victory began a two-year tire war between the Goodrich and the Goodyear shod Corvettes.** **07.** **The 1972 24 Hours of Le Mans saw four L88-powered Corvettes start the race. Two American teams (Goodrich and Goodyear) brought three entries. This No. 72 Goodrich Corvette with Greenwood driving qualified a blistering 4:18.800 and was 16th quickest overall. Unfortunately, it didn't finish due to a broken engine. The Heinz/Johnson Corvette qualified 51st (after a pre-race accident) and finished 15th overall. It was the only Corvette to finish Le Mans that year.** **08.** **The three colorful Greenwood/Goodrich team cars are parked in their pits before the start of the 1973 12 Hours of Sebring. Car No. 50 qualified 9th (3:05.520) and finished 3rd overall and 3rd in GTO. No. 49 qualified 14th (3:06.890) and did not finish, Car No. 48 qualified 8th (3:03.170) and did not finish.**

Corning. By the end of the season, Greenwood had won the championship. In 1971, he repeated his A-Production championship and won the GT class at the Sebring, Watkins Glen, and Donnybrook races.

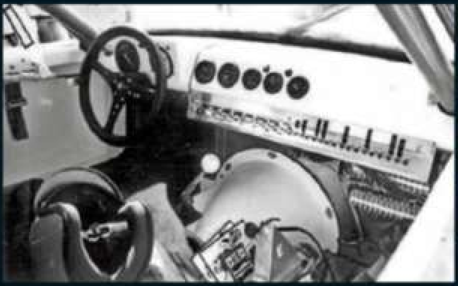
This success was gaining him attention within GM and with outside corporations. In the fall of 1971, Greenwood landed a major sponsorship package with the BFGoodrich Tire Company. The BFG livery was merged with the American Flag by Randy Wittine and proved to be a huge marketing success. John's concept of running the powerful, heavy Corvettes on street radials would turn out to be a challenging decision. Their race performance on the track was a different story. Even when the tires were cut to half tread, the big radials had stock street rubber compounds designed for long wear. This caused the tires to heat up and caused the Corvette to lose its grip. This was unlike their competitors who ran full racing slicks with sticky compounds. In the meantime, the Rebel L88 Corvette received a full season sponsorship with Goodyear. This occurred when they won their GT class on Goodyear's new racing radial tires at Daytona. The tire wars between the two companies began at Daytona and continued throughout the 1972 and 1973 seasons.

As the Goodrich sponsorship contract neared its end, John began looking towards the future. He searched for a way to use his engine's immense power. His solution was to design a wider body to almost double the size of his rear tires. John and Zora discussed his goals of building a widebody. Randy Wittine from the GM design studio developed sketches and then a full clay mockup of the design. The finished body met John's goal and it was dubbed the widebody. It was introduced in 1974 and changed the way a Corvette race car looked and performed. John was able to put his engine's power to good use. The downforce created by this new shape kept the car planted to the track. The 750 plus horsepower engine increased the Corvette's top speed. The Rebel team was disbanded in 1974. This left Greenwood as the only remaining American team to compete against the European manufacturers. During the 1975 24 Hours of Daytona qualifying, Goodyear clocked the No. 75 Greenwood Corvette at 234 mph down the back straight! Bet the Rocket Man was smiling on that run. Greenwood captured the pole position, but was unable to finish due to an on-track accident.

One of Greenwood's more impressive accomplishments was saving the Sebring 12 Hour race in 1973. He was able to put a financial package together that enabled the track to remain open. Although there was no race in 1974, due to the fuel crisis, John continued to fund and manage the race from 1975 to 1977. Because of his efforts, Sebring continues to thrive today. By the end of the 1976 season the current widebodies could not compete against Europe's big-turbo cars. John attempted to remain competitive by working with engineer Bob Riley to design a tube frame Corvette in 1977. Only three were built and were quickly sold. This ended Greenwood's quest for Corvette dominance. Even after his racing ended, he kept his creative juices flowing with ongoing modified Corvette projects. But in the end his impact on C3 Corvette racing was the epitome of his impressive accomplishments. Well done and farewell Mr. Greenwood. **VETTE**

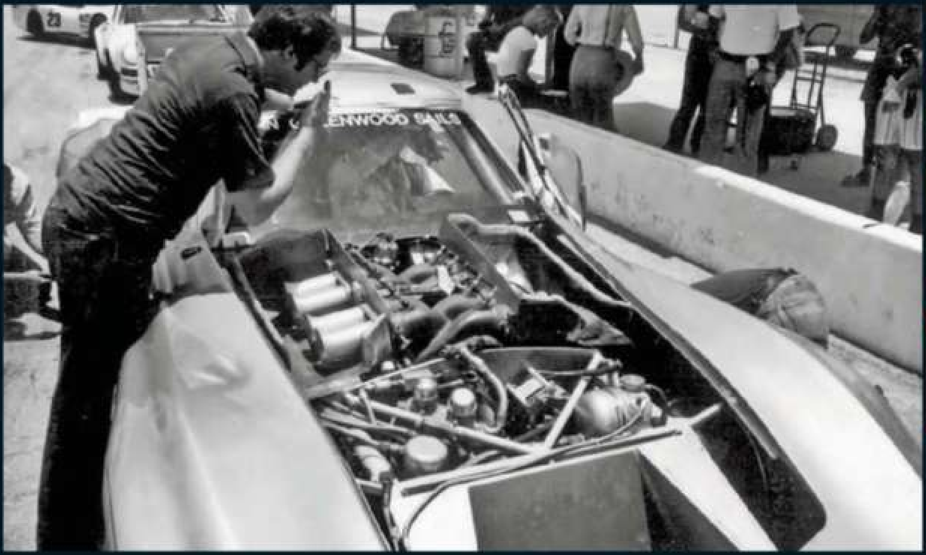


This No. 50 Corvette sits on the 1973 Sebring grid prior to the start of the 12 Hour race. It eventually finished 3rd overall and 3rd in the GTO category behind two factory supported 911 Porsches.



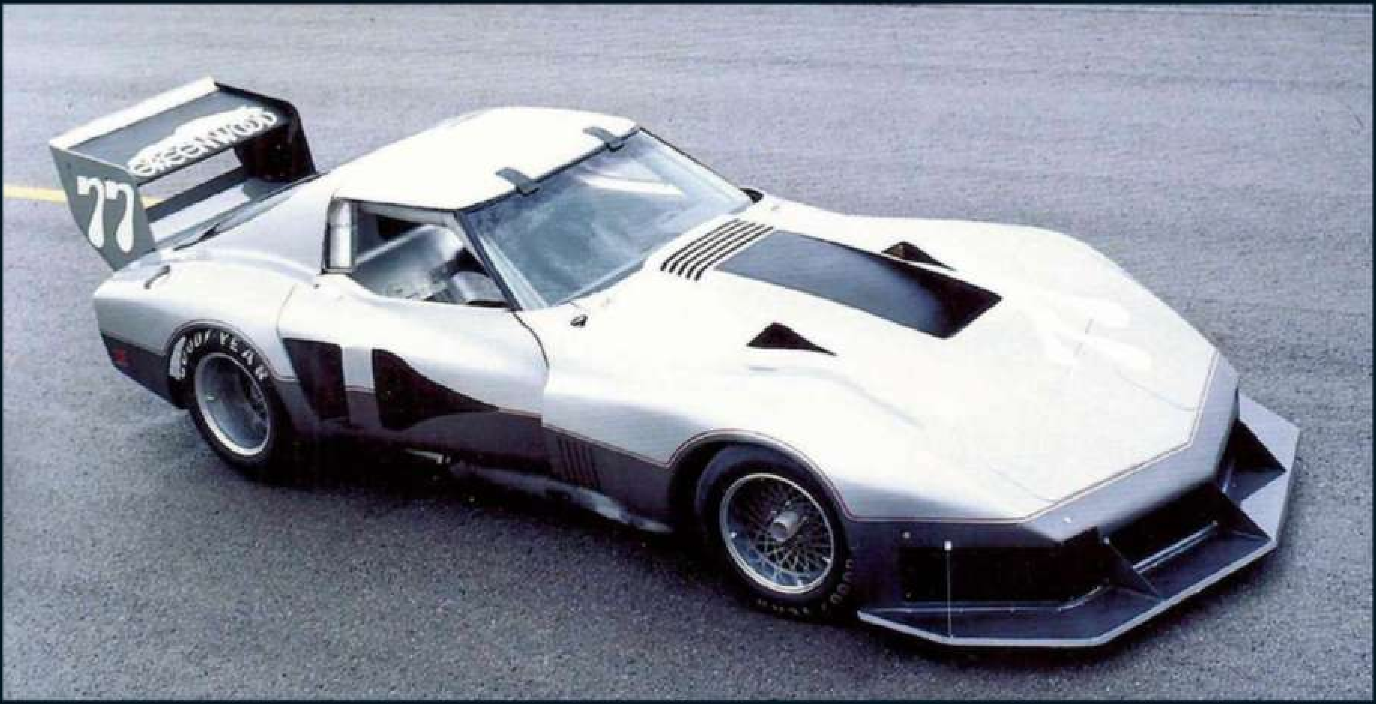
The interior of the 1975 pole position winning Greenwood widebody was completely different than a standard 1975 third-generation Corvette. It was all business and designed for quick troubleshooting and rapid interior parts replacement.

This widebody is one of John's first cars fitted with these dramatic aero style panels. It is shown entering Turn 3 during the 1975 24 Hours of Daytona. It took pole position with a time of 1:55.223 and was driven by Greenwood, Vince Muzzin, and Carl Shafer. It did not finish because of a race accident.



Every component under the skin of the SuperVette was designed with racing in mind, including this radical cross-ram fuel-injection manifold. The modified big-block was reported to produce well over 800 horsepower. Former L88 Rebel Corvette chief mechanic Dana English is performing tuning work on this complex engine during a test at Daytona.

In 1976, the Greenwood team returned to Le Mans with one entry for the third and final time with this widebody. They qualified 9th (3:54.600) with drivers John Greenwood and Benard Darniche. They failed to finish when the fuel tank split and they never returned to Le Mans. A private collector brought his widebody to Corvettes at Carlisle. It was displayed in the 2004 "Chip's Choice" special Greenwood car exhibit.


DOUG BERGEN

In 1977, a rule change allowed tube frame race cars to compete. Greenwood teamed up with chassis designer Bob Riley and the outcome was this radical C3 "SuperVette." Only three were built. Notice the 25th Anniversary commemorative paint scheme on this race car, one year before it was introduced on the 1978 model.

Daytona pole position winning driver John Greenwood gets some last minute adjustments from a crew member before the start of the 1976 24 Hours of Daytona.

From left: Doug Bergen, Rebel/Goodrich driver Bob Johnson, Corvette Repair Owner Kevin Mackay, and GM engineer Gib Hufstader share a laugh at a Corvette event. Bergen owned and raced several L88s and worked on the Greenwood team for 17 races.

The widebody aerodynamic body panels were designed to push the Corvette onto the racetrack at high speeds. Greenwood is exiting the Turn 4 banking and preparing to pit for service during the 1976 24 Hours of Daytona.

From Left: Dana English, John Greenwood, an unidentified crew member, and Burt Greenwood are preparing their new 1984 Corvette for the 1984 Longest Day Race. Rod Millen joined the team, the trio qualified 2nd overall, and led for a number of hours until mechanical problems developed after nine hours. This dropped them to a 24th place finish.

ALL ABOUT OCTANE

WHAT IT IS, HOW IT'S DONE, AND THE BEST RACE FUELS, CONCENTRATES, AND ALCOHOL INJECTION KITS ON THE MARKET

BY **RICK JENSEN**
PHOTOGRAPHY COURTESY OF **THE MANUFACTURERS**

With neck-snapping beasts like the 650-horse C7 Z06 roaming around, factory performance cars have never been faster. Cheers to the Corvette team for cranking out that pump-gas power number, because that thing is flat insane.

The rest of us spend thousands to equal or exceed the supercharged LT4's output. But normally, high-compression or boosted engine builds tuned for 91-octane street gas leave power on the table. If you want to add more timing or crank up the boost for more ponies, you'll need more octane to keep that engine-killing detonation at bay.

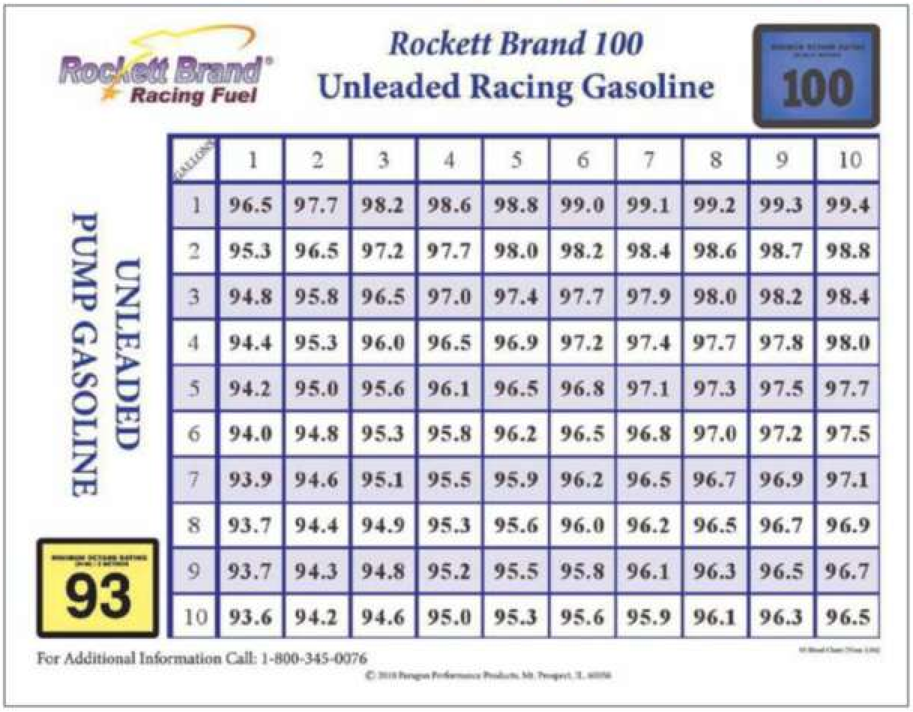
And adding octane can also benefit our lightly modded Vettes, too. Since the high-octane glory days of the 1960s, premium pump gas octane ratings have dropped, and then leveled off in the mid-1990s. They also vary widely around the United States. I travel between the East Coast and the Midwest a lot, and seeing an NYC-area Sunoco station with an Ultra 93 pump gets me all tingly. Does that make me weird? Yes, but let's see how you feel at rural Midwestern gas stations with 89-octane "premium." Throw in the fuel quality and octane variances between different stations and tankfills, and you can understand why our thriving performance aftermarket craves octane-boosting products.

But deciding to add octane is easy—the hard part is deciding how to add it. For example, let's say you decide to run race fuel: how much octane does your car need? Do you buy leaded or unleaded race fuel? Should you buy oxygenated race fuel or not? Is mixing race fuel with pump gas recommended, and if so, how much do you use?

And those questions are just about race fuel—there's also race fuel concentrate to consider. And while alcohol injection is a slightly different solution to the octane equation, it also can solve your octane-deficiency problem.

All offer benefits and drawbacks, so we're going to discuss each method in depth. And then you can go forth, head swimming in octane knowledge, to choose the best octane enhancer for your Corvette.

Rockett Brand Racing Fuel
19
Rockett Brand Racing Fuel
The science of going fast


Rockett Brand Racing Fuel
100
93

Rockett Brand 100
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GALLONS	1	2	3	4	5	6	7	8	9	10
1	96.5	97.7	98.2	98.6	98.8	99.0	99.1	99.2	99.3	99.4
2	95.3	96.5	97.2	97.7	98.0	98.2	98.4	98.6	98.7	98.8
3	94.8	95.8	96.5	97.0	97.4	97.7	97.9	98.0	98.2	98.4
4	94.4	95.3	96.0	96.5	96.9	97.2	97.4	97.7	97.8	98.0
5	94.2	95.0	95.6	96.1	96.5	96.8	97.1	97.3	97.5	97.7
6	94.0	94.8	95.3	95.8	96.2	96.5	96.8	97.0	97.2	97.5
7	93.9	94.6	95.1	95.5	95.9	96.2	96.5	96.7	96.9	97.1
8	93.7	94.4	94.9	95.3	95.6	96.0	96.2	96.5	96.7	96.9
9	93.7	94.3	94.8	95.2	95.5	95.8	96.1	96.3	96.5	96.7
10	93.6	94.2	94.6	95.0	95.3	95.6	95.9	96.1	96.3	96.5

For Additional Information Call: 1-800-345-0076

RACE FUEL

Race fuel is the old guard of high octane—it's been around for decades, it's produced by numerous companies, and it's available in many octane ratings and formulations.

It's a fascinating concoction, so to further educate ourselves we reached out to two gentlemen with a combined 80-plus years of fuel experience: Jack Day, president of Rockett Brand Racing Fuel, and Tim Wusz, Rockett's VP of engineering. These two made and sold race fuel at Union 76 during its NASCAR partnership, then started Rockett Brand in 2004. These days, Illinois-based Rockett Brand offers unleaded and leaded racing fuels with 100-, 110-, 112-, 114-, and 118-octane ratings, and E85 with a 112-octane rating.

Race fuel is comprised of fewer than 100 hydrocarbons: there's maybe six prominent ones, and the rest are present only in small quantities. A good race fuel manufacturer only includes fuel components that will give desired qualities—high octane, a fast burn, good vaporization, and for leaded fuels, the ability to play nice with lead.

Compare that to normal pump gas: it is a mixture of several hundred hydrocarbons, with many of them occurring during the refining process. As they can't be separated out, these components are just along for the ride—they burn just fine in non-race, non-high rpm engines anyway.

Race fuel is a fantastically complex product, but of course the first thing we all wonder about is its…

OCTANE

A fuel's octane number is its ability to resist detonation. And it's important to note that octane isn't power—the benefit to raising a fuel's octane quality is only valid if the engine it goes into is detonating. The higher a fuel's octane number, the more resistant it is to detonation.

An engine only needs enough octane to prevent detonation; if it's tuned for 91-octane pump gas and has a slight ping on a hot day, filling up with 118-octane race fuel won't add crazy horsepower.

Fuel has what's called an **anti-knock index, or AKI**, which is calculated based on the average of two different tests: the **research octane number (RON)** test, and the **motor octane number (MON)** test.

The research octane number test consists of a single-cylinder engine that runs at 600 rpm. Using 125-degree F intake temperature and standard barometric pressure, this part-throttle test determines a fuel's detonation resistance at light load.

The motor octane number test is more severe: the single-cylinder engine runs at 900 rpm and breathes 300-degree F intake air. This is a heavy-load test that determines how a fuel will perform at wide-open throttle.

When buying gas at the pump, you're choosing a fuel based on its AKI—the pump wears EPA-required decals showing **(R+M)/2** and fuel grades like **93**, **89**, and **87**. So as an example, clicking the "93" button means you're selecting a fuel that might have a 97 research octane and an 89 motor octane. (97 + 89 = 186) / 2 = 93 octane.

But with race fuels, companies sometimes only list the MON number for fuels they consider "track only," and can list the MON, RON, and R+M/2 numbers for street-friendly formulations. Both the MON and RON have value; however, unless you need to choose a race fuel based on its RON or R+M/2 number for a certain racing class, experts recommend that you base your fuel choice on its MON.

But Day adds an important last word on octane. "All racing fuels are not the same, or made the same way. Between two different brands of race fuel, the one with a higher octane number doesn't necessarily mean that it's a better fuel. You only need an octane number to satisfy octane requirement, but a quality racing fuel is about the entire package, not just its MON."

RACE FUEL PROPERTIES

Speaking of the entire package, let's get into how race fuel works—we've already discussed motor octane, research octane, and R+M/2 values, so let's cover a few more important properties of race fuel:

A fuel's **burning speed** describes how quickly it releases energy. Different race fuels contain different amounts of additives, which affect the speed at which that fuel burns. This gets ultra-technical real fast, but basically, the goal is to create peak cylinder pressure (and power) for your specific engine type and motorsport.

Its **energy value** describes how much potential energy a fuel can make, and is measured in BTUs.

The **cooling effect** describes how well a fuel helps cool an engine's intake mixture as the fuel goes from a liquid form to a vapor. Related to the heat of vaporization, cooling effect benefits all engines as it increases the density of the inlet air and therefore, improves volumetric efficiency.

Its **specific gravity** is the ratio of a liquid's density compared to water, at a specific temperature. The specific gravity of race fuel can range from the .690s to the low .800s at 60 degrees Fahrenheit.

A fuel's **Reid Vapor Pressure (RVP)** is a liquid fuel's evaporation characteristics, measured in pounds per square inch. You've experienced RVP by buying summer and winter gas: summer fuels are blended to have 7 to 10

psi RVPs, preventing the fuel from evaporating in the summer heat (and creating high gas tank pressure and airborne pollution). Conversely, winter fuels can have RVPs of 10 to 14 psi, as there's less chance of evaporation in cooler temps. A quality race gas has around 6 to 7 psi of vapor pressure; carbureted engines can't have too light of a vapor pressure, or it can cause vapor lock.

Its **distillation** is a measurement of a fuel's evaporation tendencies when heated. As fuel is a mixture of many different hydrocarbons, it will evaporate at different temperatures until the end point (E.P.) is reached. An example could be, "10% evap @ 141.0 °F, 50% evap @ 174.0 °F, 90% evap @ 214 °F, E.P. @ 260 °F."

The **oxidation stability** measures a fuel's resistance to breakdown by using oxygen, pressure, and heat, and recording the amount of time it takes to break down while in storage.

A fuel's **oxygen content** shows if it is oxygenated or not. Some manufacturers simply say "Yes" or "No," and some show a percentage: "0" for none, or "3.5."

Its **lead content** shows if a fuel has tetra ethyl lead or not, and if so, how much.

And finally, the **color** is simply the color of that specific fuel.

OXYGENATED RACE FUEL

Highly oxygenated fuels are the relative newcomer to the race fuel scene. They have oxygen molecules in them, thanks to oxygenating components like methanol and ethanol. Compared to straight hydrocarbon race fuel, they require richening the mixture, but they also make more power. However, some oxy fuels aren't as low-maintenance as hydrocarbon fuels, and are best for dedicated racing vehicles. See the "How To Choose The Right Race Fuel" sidebar in the extended web version for more information.

RACE FUEL OCTANE RATINGS

Now that the technical stuff is out of the way, let's take a look at the octane range of today's race fuels. We researched various race fuel manufacturers, including Rockett Brand and Torco, to create the following list. And for clarity's sake, we're not including any outliers that you wouldn't use in your Corvette anyway, like FIA-approved fuels.

That being said, today's race fuels are available with:

- **Motor octane number (MON) ratings of 95 to 120**
- **(R+M)/2 / research octane number (RON) ratings of 100 to 118**
- **Highest unleaded MON: 110**
- **Highest leaded MON: 120**
- **Leaded and non-oxygenated MON of 96 to 120**
- **Leaded and oxygenated MON of 100 to 120**
- **Unleaded and oxygenated MON of 95 to 101**

BLENDING RACE FUEL WITH PUMP GAS

Adding a few gallons of race fuel to varying amounts of pump fuel is a popular octane-boosting method that enthusiasts use. We were curious what a race fuel expert would say about it, so we asked the Rockett Brand team. Here's what they said:

"[Mixing race and pump fuels] is an okay thing to do, and much better than 'octane boosters.' It does not damage the engine, and improves the quality of the street gas. Octane numbers blend almost linearly, and we actually publish blending charts on our website for those who insist on doing this. For example, if you blend a 92-octane pump gas with a 100-octane race fuel in equal amounts, you will get a 96-octane fuel.

"But keep in mind, if you don't want to spend money on straight race fuel, you are watering down the benefits that straight race fuel has. You may get the octane you need, but you will not get the optimized vapor pressure and blending.

"Overall, I recommend that the user choose the octane that he or she needs, and not try to be a chemist and play with the fuel. Do you water down your drink before you consume it? Life is too short to drink cheap booze." Well said.

RACE FUEL CONCENTRATES

Race fuel concentrates are a relatively new player in the octane-adding game, and one prominent product is Torco Race Fuels' Accelerator. This unleaded race fuel concentrate is blended in-house at Torco's Arizona location—alongside leaded, unleaded, oxygenated, alcohol, and nitro race fuels. We had questions, and Jody Davis at Torco Race Fuels gave us answers.

"A race fuel concentrate adds fuel ingredients to pump gas to increase its octane," Davis starts. "We do this by 'over treating' the Torco Accelerator race fuel concentrate. These are the same chemicals used in our unleaded race fuels, but they're included at a

very high treatment rate. When the concentrated formula is mixed into the pump gas, the treatment rate is very similar to what our unleaded race fuels have in them."

Davis believes that, compared to race fuel, race fuel concentrates have easier portability and numerous blending options. "We have many customers that use the Torco Accelerator when they are going to the track. They will use pump gas to drive there, then they simply pour the can into their vehicle and hit the track. Many racetracks do not offer race fuel at the facility, so this is a great, easy-to-handle option.

"The other major benefit is that the customer can tailor the octane requirement to their engine. They can make a 97-octane fuel, while a race fuel supplier may not make one that fits their needs. Torco Accelerator can be mixed to whatever the customer may desire."

We also asked Jody why Accelerator was only available as unleaded concentrate—was it customer preference, or would enough lead not fit in the small containers? "Lead is not used in a concentrated form due to the fact that the lead is extremely toxic," he explained. "Aside from that, for a concentrate to treat 10-20 gallons of pump gas, there would need to be 40-80 grams of lead in a container. A typical, 118-octane leaded race fuel only has about 6 grams of lead per gallon—so 80 grams in a quart container would be a ton." Fair enough.

WATER-METHANOL / ALCOHOL INJECTION

A bit different from the race fuel solution to octane, these injection systems are known as water-methanol injection, or alcohol injection. They're "octane on demand,"

(re)built to last.

The complexity of typical Corvette driveline components demand the skills of a pro. Whenever special tools and critical tolerances are in play, a misstep could prove disastrous. Zip's in-house techs excel at making "old" as-new again – specializing in differentials, trailing arms and wheel bearing assemblies. We live precision. Guaranteed.

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activating from as low as idle, to high-load or mid to high boost levels. Unlike fuel that flows through the injectors, water-meth systems inject fluid into the "up pipe" going to the throttle body. They're effective on forced-induction and high-compression engines that see street or track use. And they're hugely popular on turbo or supercharged street machines that would otherwise use hundreds of gallons of race fuel during normal street driving.

It's common for different vehicles to use different water/alcohol formulations for their overall goals. For instance, enthusiasts using an aftermarket blower with street boost levels might use a 50/50 water/meth mix. But hardcore turbo guys running ultra-high boost forego the water entirely, and use 100 percent methanol.

For more insight we spoke with Matt Snow, president of Colorado-based Snow Performance. Snow Performance specializes in water-methanol injection systems, and Matt explained how a water-meth system works, what fluids can be used, and why it's such a cost-effective solution when premium pump gas won't cut it.

"An engine running pump gas is limited on how much compression, cam timing, spark, and boost it can run," Matt starts. "But water-methanol injection increases the detonation threshold of the engine, allowing more timing and/or boost for more power and efficiency without inducing detonation."

While several liquids can be used, including ethanol or iso (rubbing alcohol), methanol is preferred as it gives more detonation control. "Due to testing difficulties in the standardized test engine, methanol's RON is published as 105," Snow explains. "But in reality, the effective octane of methanol is much higher—some say as high as 130. So when you're discussing the effective octane—the actual resistance to detonation in the combustion chamber—91-octane fuel with a 50/50 water-methanol mix compares well to 116-octane race gas."

It's important to note that Snow's Boost Juice fluid is a 50/50 water-meth mix—which he believes is safer. "Even though our systems can use [100 percent methanol], straight methanol has high flammability. So we recommend a mix of half methanol and half water. That way you get 90 percent of straight methanol's effective octane without the high flammability, and you get the cooling advantages of water as well."

And if your engine isn't extreme, you don't even have to run 50 percent meth—grabbing a bottle of blue windshield washer fluid at your local gas station is acceptable fluid too! "Most engines don't need 116 effective octane, so for a 30 percent methanol mix, you can inject that blue windshield washer fluid with a -20° rating. Combined with 91-octane fuel, this mixture can hold its own compared to 110-octane race gas."

Snow Performance's water-meth systems include a controller, a tank, a high-pressure pump, and a nozzle. These bolt-on systems have harnesses with plug-in connectors, and nozzle mounting plates so no wiring or drilling is required. The controller injects the right amount of water-meth at the right time using application-specific engine parameters, and the nozzle creates a spray with very fine atomization.

As the popular ECM tuning suites support water-meth systems, tuning is straightforward—though letting an expert tune it is recommended. On that note, Matt stresses that water-meth isn't like injecting nitrous, and too much can cause combustion quench. The method is like so: after baselining and getting the engine's air/fuel ratio to 11.5-12:1, the best way to tune is to start by over-injecting the water-meth, and trimming it until no power is lost on the dyno. Then you can start adding timing and boost.

"On boosted vehicles using pump gas, most tuners are good with an 11:1 air/fuel ratio, and they pull 1/2 degree of timing out for every pound of boost on the WOT table. With water-meth, the engines don't have to run so fat because combustion is being cooled by the water-meth, and the air/fuel ratio can be adjusted more for peak power.

"And Snow offers additional peace of mind with SafeInjection, an upgrade that monitors our system for flow. If it ever gets too high or too low, it will trigger a safer tune or open up a BOV to reduce boost instantly."

The water-meth reservoir can be located in the engine bay, or elsewhere like the hatch or trunk. Snow Performance offers several reservoir sizes, including a 3-quart container, 2.5-gallon reservoir, and a modular, 5-gallon "fuel cell." And regarding usage, a 500-horse Corvette with a 3-quart reservoir carries enough fluid for 12 quarter-mile passes.

THE PARTS STORE OCTANE BOOSTER MYTH

It's very important that you don't lump race fuel concentrate and other high-octane chemicals in with parts-store octane boosters. Somehow, the word "octane booster" became the "Coke" of adding octane—and those words have been used on milquetoast parts-store products for decades.

Those inviting plastic bottles do look super cool, and after dropping a few bucks and eagerly dumping mystery fluid in the tank, you swear that you feel some extra power in the old butt dyno. But the truth is, they're mostly slick marketing at work: these products don't add full octane points, like say from 91 to oh, I don't know, "104" octane. They only add "points" of an octane, *or from around 0.2 to a little over 1 octane number*. Now, if you have a slight ping and want to spend $8 to go from 91 to 92 octane, then by all means buy the stuff—it may restore a couple of horsepower. (Or you could buy some top engine cleaner and remove the carbon deposits that may be causing that ping instead.)

Thankfully, there's said to be some effective octane adders out there. While we've not done in-depth testing, some have reported good results with brands like Klotz and Aces.

HOMEBREW OCTANE BOOSTERS

For years, DIYers have added big octane to pump gas by following formulas found on sites like the Homebrew Octane Boosters page, and using available chemicals like toluene, xylene, iso alcohol, and methanol/ethanol. However, some of these powerful chemicals are very hazardous, and require adding a lubricating and/or cleaning agent to play nice with your engine and fuel system. Some aren't legal in states like California, either.

And according to the Rockett Brand brain trust, a higher octane rating doesn't a good race gas make. While you won't be surprised that a race fuel company doesn't recommend these homebrews, these guys have forgotten more about gasoline than we will ever know. So for your and your engine's health, you should at least listen to what they have to say:

"Please stay off these homebrews," Rockett's Wusz states. "They're dangerous and they don't work like you think they do. It takes solid science to make a good gas; it's not what you put into it, it's how you blend it. And just overdosing gas with toluene might raise the octane, but it's not necessarily enhancing performance even if it won't activate the knock sensor until later. Octane is just one of numerous aspects in gas. For instance, toluene burns slower—it can cause problems, especially on the exhaust side of turbo applications." Okay, you've been warned.

AV GAS

Av gas seems like a fantastic bargain, especially because of its high octane and affordable price. And many enthusiasts, your author included, have used aviation gas to add performance to forced-induction street machines for years. But again, Rockett's Wusz says you get what you pay for.

"First, av gas is designed for planes flying at 10,000 feet, and running a max rpm of 2,800," he explains. "And planes have air/fuel mixture controls that allow the engine to be 'full rich' at takeoff. This is critical, because the specific gravity of aviation fuel is on the low end, down as far as the .69X range. It's a very light fuel that needs to be richened up, or it can make an engine run lean."

And besides lean air/fuel ratios, there's more bad news. "Av gas has a much bigger blending tolerance window than racing gas does," he says. "When the window is broader, you get lower-quality hydrocarbons that slow the burn down. That's okay for aviation, as it doesn't affect a plane's performance. But for vehicles—especially high-performance cars running high rpm—it isn't good. In short, 100LL isn't the same as 100-octane racing fuel, and you'll get better performance out of the racing fuel." **VETTE**

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GIMME A BRAKE

MAKING THE C1/WILWOOD PARKING BRAKE CONNECTION

BY **GERRY BURGER** • PHOTOGRAPHY BY **THE AUTHOR**

As our 1960 Corvette project rolls along, we are dealing with some of the smaller tasks involved in a frame-up build. One such project is connecting the parking brake cables from our Wilwood disc brakes so they can be actuated by the factory parking brake lever.

It is this melding of the old and new that we find most enjoyable. As it turns out, the original 1960 Corvette parking brake cable, handle, and lever were easily adapted to our modern parking brake cables.

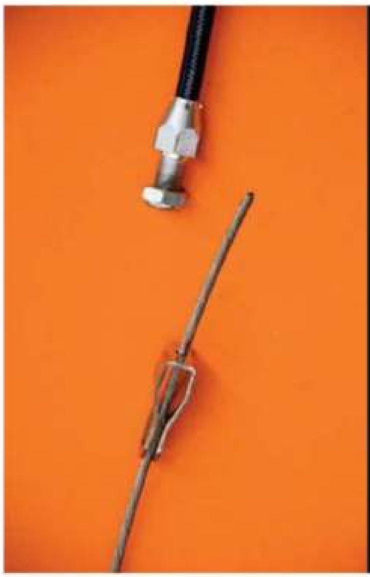
The process begins at the rear where a set of Wilwood brake cables connect to the internal parking brake on each rear caliper. The parking brake works like a small drum brake, utilizing the internal diameter of the rotor hat as a drum. Pull the cables and they move a lever that pushes the brake shoes out against the drum and you have a very effective parking brake. The trick is to mount the cables with enough leverage to activate the brake, and of course that lever must be designed to pull the cables. Since we were able to use the factory Corvette lever and the original mounting hole, the force required at the parking brake handle will be the same as the stock parking brake.

We began at the brake caliper where we connected the parking brake cable and laid out the rest of the cable heading forward. By following the rear portion of the X-member the cables would leave ample room for exhaust, and at first glance it appeared the factory Corvette brake lever should work well with the new cables.

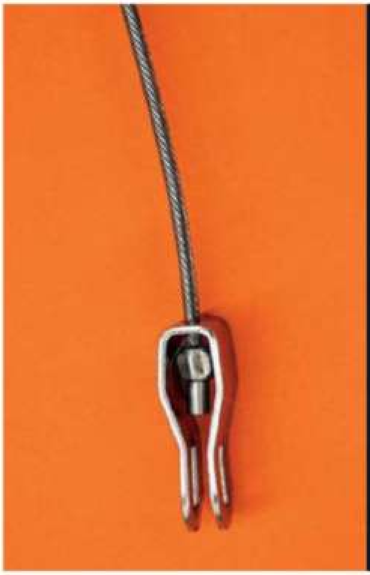
As it turned out, after some basic fabrication the factory parking brake lever and associated cables worked perfectly with our new Wilwood brake cable kit. While we had the original cable and it seemed to still function, it was also heavily rusted and 57 years old. We opted for a new cable assembly from Corvette Central simply because it was relatively inexpensive and it seemed like good insurance against future problems. We also ordered a new lever return spring since our old spring actually broke during the removal process.

This entire project consumed a couple of evenings. Much of that time was spent designing the system, figuring the best route for the cables, and then actually fabricating the pieces to make it work. In the end, we had an all-new parking brake system that works perfectly, is fully adjustable, and blends well with both the chassis and the interior of our 1960 Corvette. **VETTE**

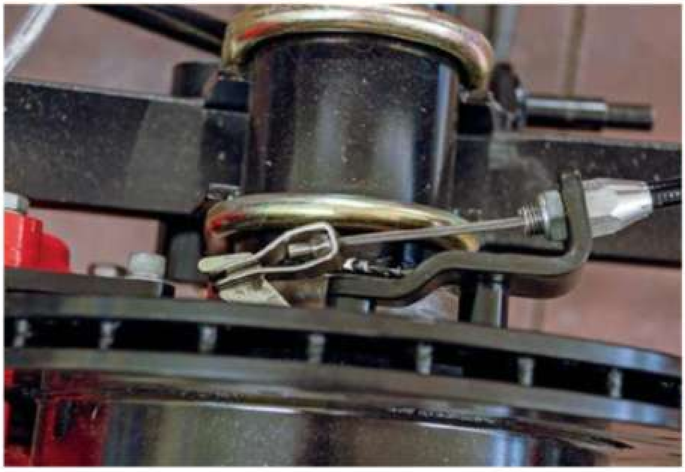
01 Our project car has Wilwood rear brakes mounted to a Currie rearend, so we used this Wilwood internal parking brake kit to make the connection to the 1960 Corvette brake lever.



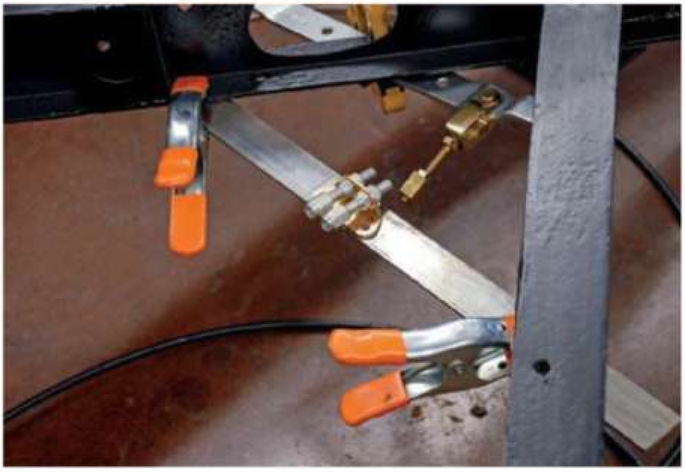
02 First, slide the supplied clevis over the cable. The braided cable can then be slid into the cable cover.



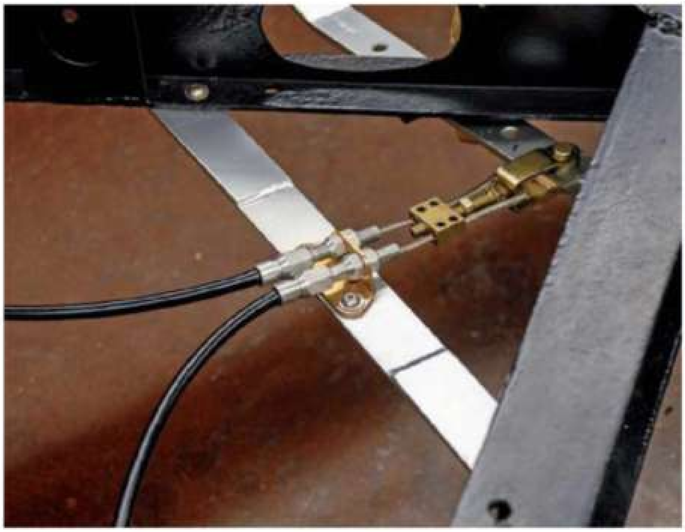
03 This is the proper orientation for the clevis on the cable. The brake end of the cable has the end lug already crimped to the cable.



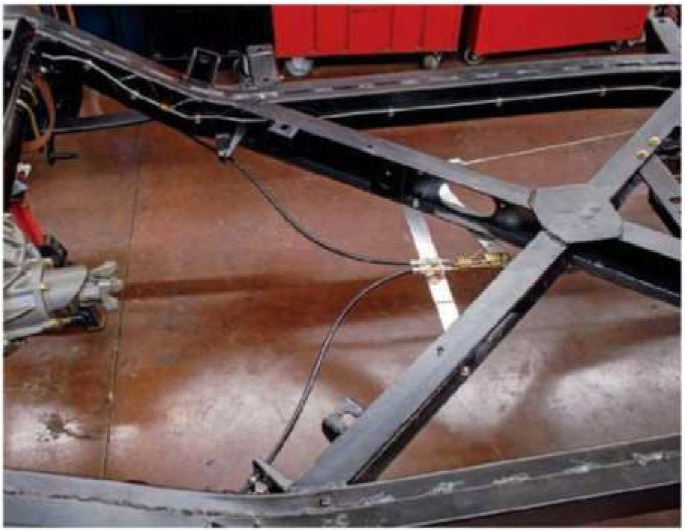
04 The slot in the clevis simply slips over the parking brake lever that protrudes from the internal parking brake assembly. The cable cover is then fastened to the bracket. Always use antiseize on aluminum threads.



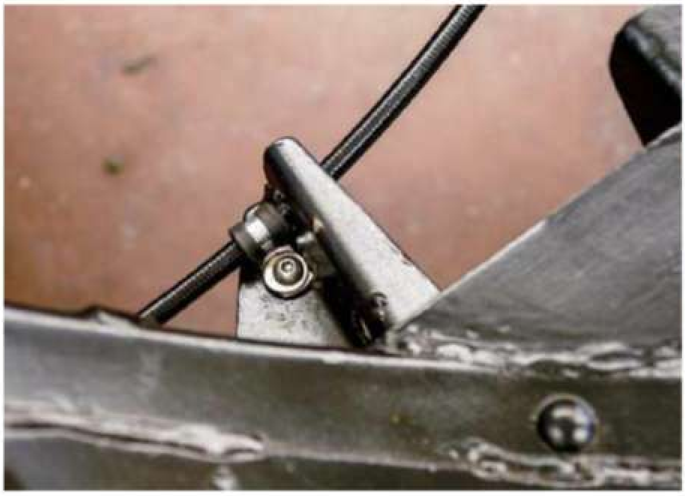
05 With the cables connected to the brakes, we moved forward to figure out how to use the stock 1960 parking brake lever with the new Wilwood brakes. We clamped a piece of 3/16-inch flat stock in place to take initial measurements.



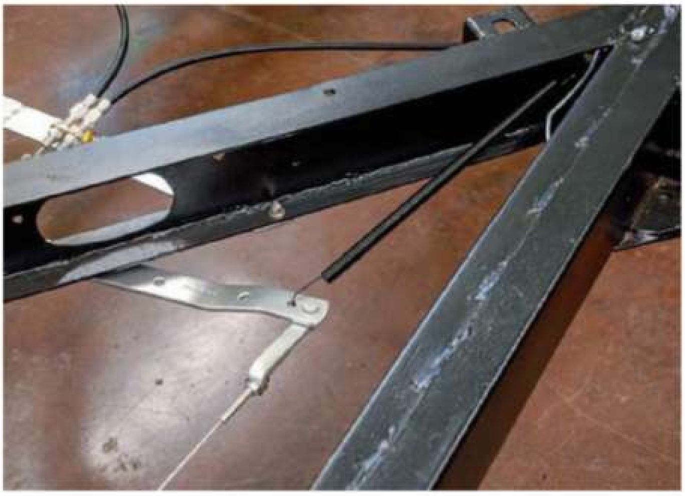
06 This is the finished bracket. To align the cables with the '60 Corvette lever we welded an additional piece of 3/16-inch flat stock on both ends. This placed the cable mount 3/8-inch below the X-member.



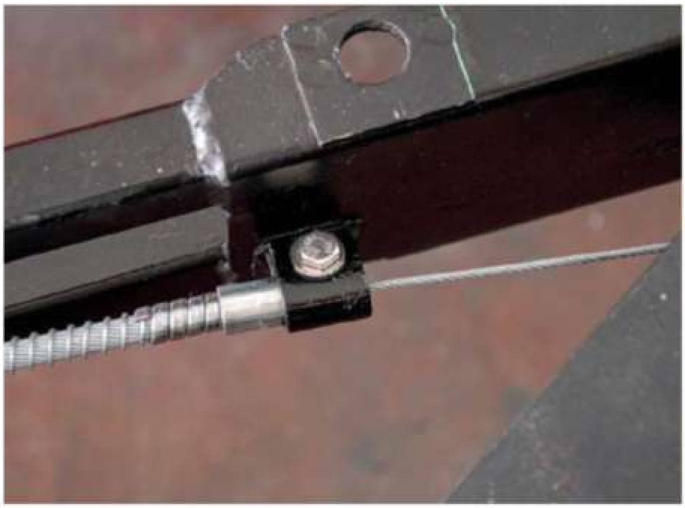
07 Next, we routed the cables using the original parking cable routing brackets for support. This leaves plenty of room for exhaust components. The cables were shortened to the proper length at this time.



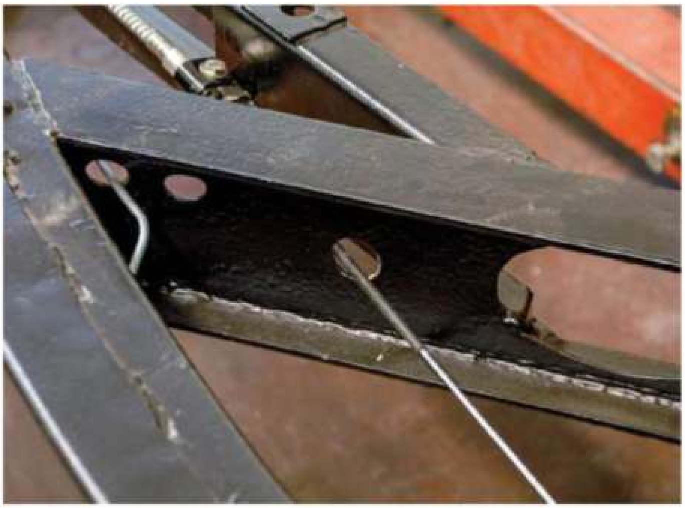
08 The Wilwood kit even comes with stainless cable clamps. We mounted the clamp to the original cable bracket using a stainless steel button head bolt.



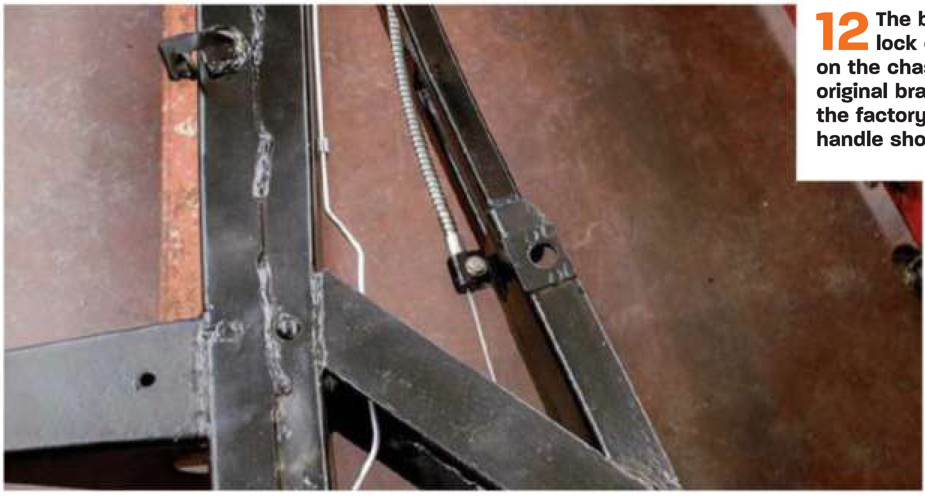
09 On the end of the Corvette lever we attached a new return spring sourced through Corvette Central. The spring holds the arm back and also pulls the lever upward to keep the long lever level. The Corvette parking brake cable is attached to the lever using the factory connection.



10 We bought a new parking brake cable from Corvette Central and used the factory clamp to locate the end of the shield cable. This is on the front portion of the chassis X-member.



11 The new cable includes a rubber protector where the cable passes through the front X-member. The cable has ample adjustment where it connects to the rear parking brake lever.



12 The bolt slides through a recess in the cable to lock everything in place. After the body is back on the chassis we will do final adjustments so the original brake handle applies the parking brake. As per the factory manual, seven clicks of the parking brake handle should fully engage the parking brake.

Sources

CORVETTE CENTRAL
800/345-4122
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(1) Mailed Outside-County Paid Subscriptions Stated on PS Form 3541	31,346	31,260
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NOT WHAT IT SEEMS

CONVERTING A ROCHESTER FI UNIT TO MODERN EFI

BY **JEREMY D. CLOUGH** • PHOTOGRAPHY BY **THE AUTHOR**

01 This matte-black '54 roadster being built at Street Shop, Inc., blends classic hot rod styling cues with just enough original style to still be a Corvette. Follow along as we top off the snarling 427 small-block with a reconstructed original fuelie intake converted to modern EFI.

With the current popularity of the all-conquering LS-series of engines, it's easy to forget that there are still plenty of other ways to skin that particular cat. With a little imagination—and fab skills—it's still possible to get old-ride style with big power and modern electronic fuel injection. Case in point: the '54 Corvette owned by Street Shop, Inc. Built on a modern, fabricated chassis with a Ford 9-inch rearend and C4 Corvette front suspension, the C1 has an aftermarket body, but with a correct '54 VIN tag. It is a legit '54, but one they're not afraid to play with. And play with it they have. From the American Racing Salt Flat wheels boasting 315-series rubber tucked up under the fenders to the matte-black primer, the car oozes way more hot rod attitude than code-correct bona fides. Under the hood, it boasts an old-school 427 small-block that dyno'd to the tune of 550 hp — not too shabby for a car weighing in not all that much more than a ton.

02 Fear not, my NCRS brothers: no correct parts were harmed in this installation. Walden carefully welded up two scrapped intake halves to create a single, functional unit that was then modified for modern injection.

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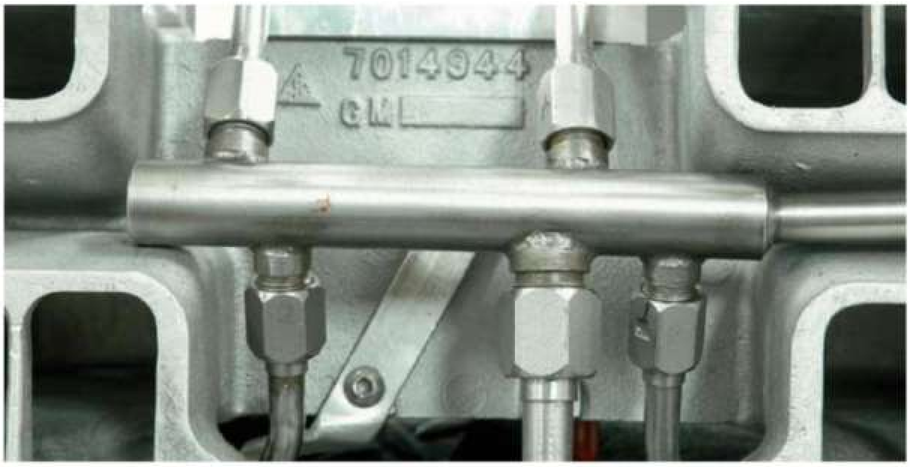
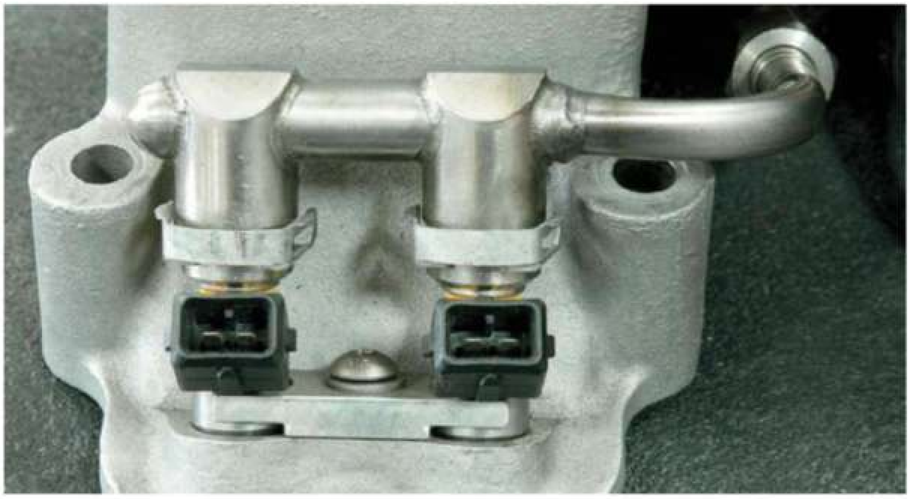
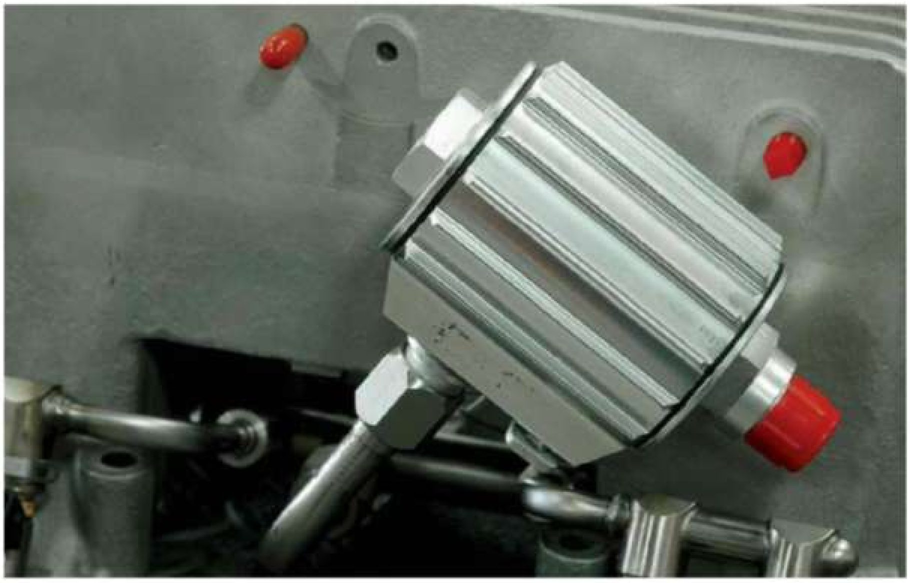


03 By far the most impressive part of the fab work; the fuel rail was built from scratch by Donald Lee, who expertly welded up the injector seats and the common rail to feed them.



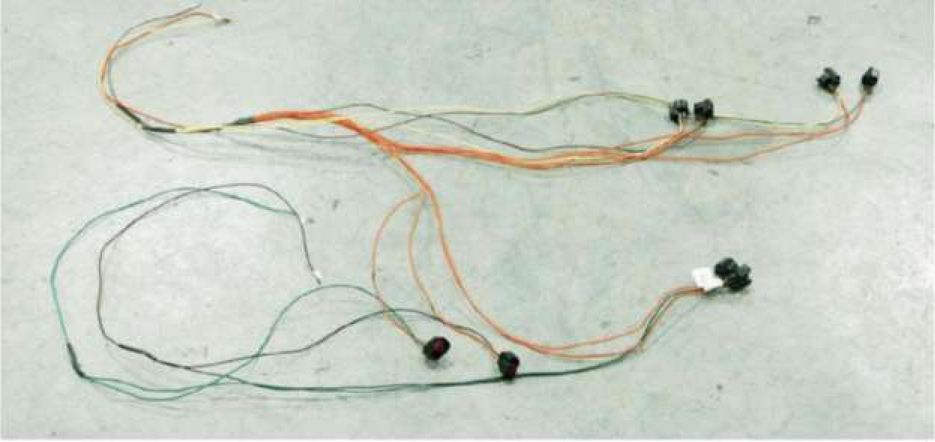
04 The fuel rail where it meets the injector: clean, well-designed, and well-executed. The machine work involved to create the seat is particularly impressive.



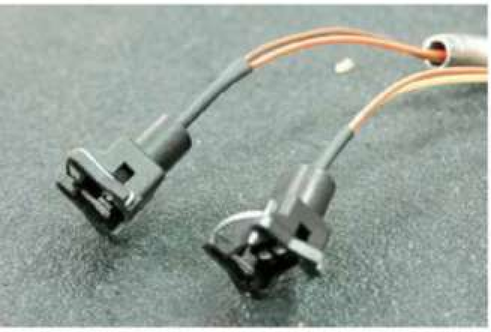
05 An aftermarket, aluminum fuel filter was pressed into service. After being re-machined to appear more period correct, it was mounted to the side of the intake where the fuel metering system would typically appear on a fuelie Corvette.

Not content with a carb for this application, Street Shop's founder Tray Walden wanted to include fuel injection in the car without resorting to either an LS or a carb-style throttle body. The answer presented itself in unlikely fashion when he came into possession of half of an original Rochester fuelie manifold. Then he got another half. They matched … mostly. With a little creative welding, the two halves became a single unit, which was then modified to accept modern minitimer-style electronic injectors. An aluminum spacer was machined that would hold a FAST throttle body in place of the factory one, and Donald Lee expertly welded up a fuel rail system that includes stainless hard lines that plug directly into the injectors, hiding the common rail in the opening beneath the upper intake plenum and the lower base to which it attaches.

An aftermarket fuel filter was re-machined and mounted to the side of the intake in place of the factory fuel metering system, where the filter's new, ribbed shape mimics



06 As you've seen us do once before on our '72 project car, we started the wiring with this: a fuel injector harness from FAST. While we used their XFI system in our '72, this car uses the simpler EZ EFI computer.



07 We bent up tubing to serve as a conduit for the injector wires, grouping the wiring by pairs of injectors. One set of wires came out of the end of the conduit, while the others came out through an oval hole made in the middle of the conduit. Although we carefully dressed the holes with a fine needle file, we still used heat shrink to protect the wires where they went into the conduit.

08 The injectors have a Metri-Pack style terminal, which crimps into place with the standard Packard crimpers. Once we had terminated the wires into the injector connectors, we then pulled the wires back through the conduit, bringing the injectors as close to the conduit as possible to minimize the amount of exposed wire.

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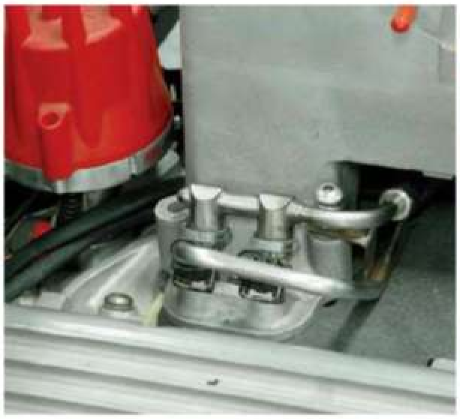
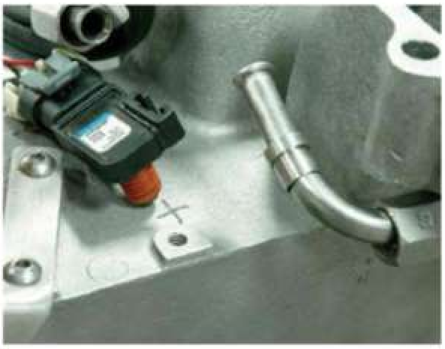
the valve covers and ribbed intake. To let the engine breathe, a length of tube was bent into a shape that, like the rest of the car, will not mislead a trained eye, but does pay homage to the air intake on a factory fuelie.

We came into the project after the initial metalwork, when it was time to wire it all up. Taking a cue from the clean plumbing of the fuel system, we bent smaller tubing into a similar shape to serve as a conduit for the injector wires, which we purchased from FAST as part of their EZ EFI system. As with our '72 project car Scarlett, which is being built at Street Shop, we terminated all the wires into a single Delphi HES plug for routing through the firewall, and ran them through either braided conduit or heat-resistant fiberglass conduit, which is our weapon of choice for protecting wires under the hood.

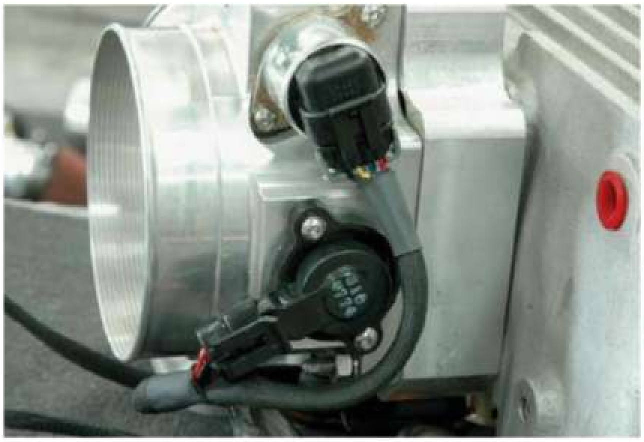
With everything crimped, shrunk, sealed, and bolted back in place, this part of the car is happily complete. **VETTE**



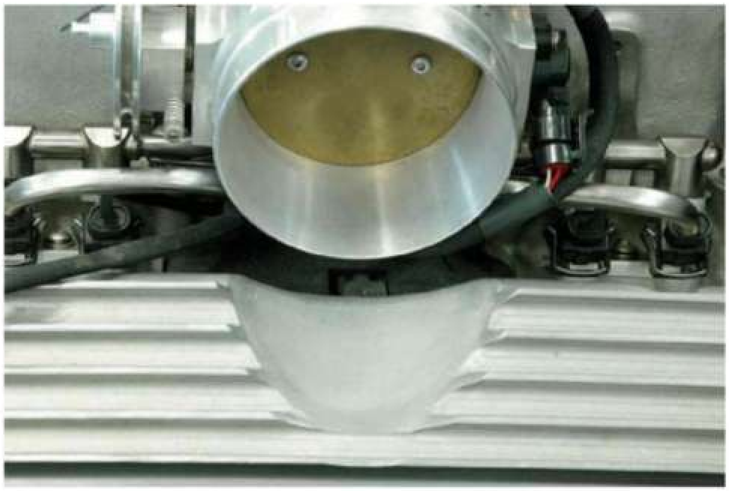
09 The finished injector assembly, with the injectors mounted in both the intake and their fuel rail, and the wiring routed through the conduit. Note that the conduit is held in place with a bracket through which the intake mounting bolt passes.



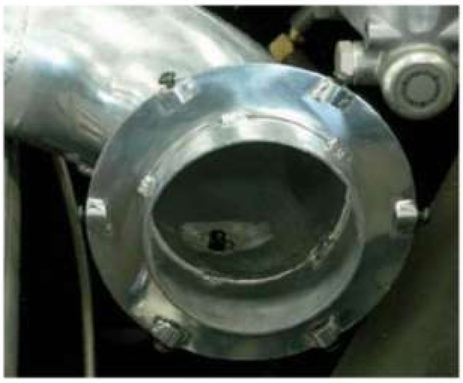
10 There aren't a lot of good places to locate the MAP sensor, but it's got to go somewhere. While it's possible to route a rubber hose from the manifold to a remote sensor, we wanted to keep everything as close as possible, so we located a drilled hole on the bottom of the intake plenum. We used the threaded hole to mount the bracket we fabbed to hold the MAP sensor in place.



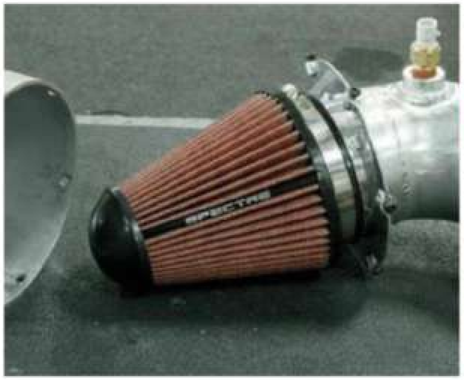
11 Since a clean install that won't be noticed is pretty much always our goal when wiring, we routed the sensor wires through fiberglass conduit and used heat shrink to compress the conduit to keep it from fraying. Where possible, like here with the IAC and TPS, we combined multiple sensor wires into a single length of conduit.



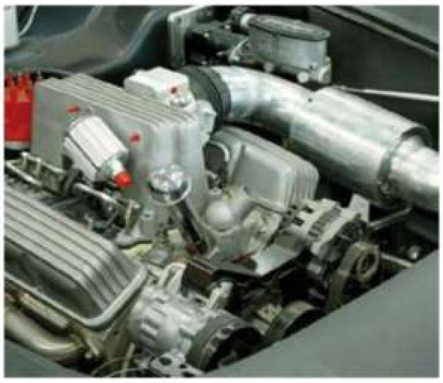
12 The top of the ribbed valve cover had to be clearanced to make room for an air tube large enough to feed the big mouth of the FAST throttle body. Note how it was carefully welded up with a concave piece of material.



13 The air tube was drilled for an air temperature sensor, which is just visible inside the tube at the bottom. We welded a clip on the bottom of the tube to hold the wiring for the sensor.



14 A larger diameter piece of tubing was used to make an airbox that would hold a Spectre conical filter. Note the air sensor: in this photo, the bottom side of the air tube is pointing upwards.



15 The finished assembly in place in the engine compartment. A little more crimping and wiring, and we'll be ready to hear the beast rumble to life.

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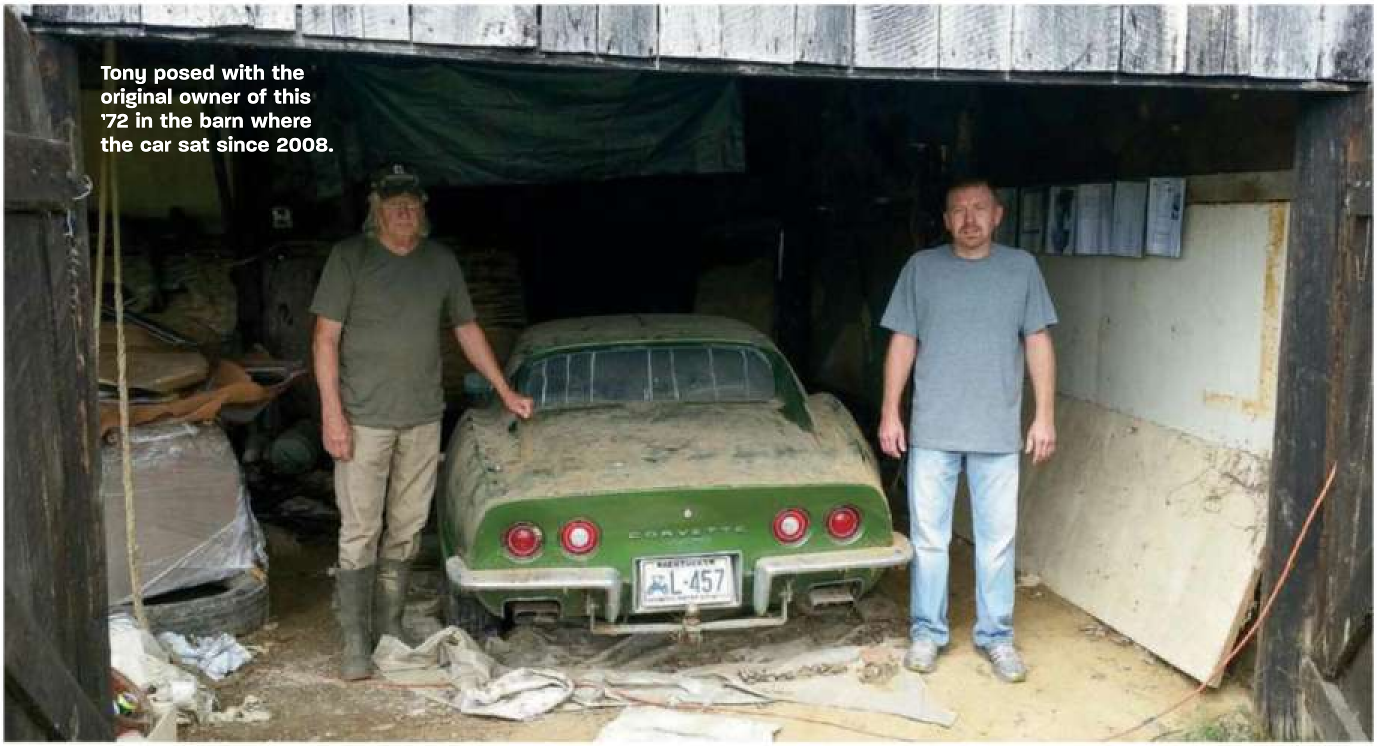

Tony posed with the original owner of this '72 in the barn where the car sat since 2008.

NOSTALGIC TREASURE FIND— 1972 VETTE

Tony Back is so elated with his *Vette* Rare Find, a month has passed and he hasn't cleaned the '72 T-top coupe. "Five or six people have come by my house and said, 'I hear you found a barn find. You mind if I take a look at it?'" Back is happy to show his treasure but as he explains, "Everybody around here says the same thing, 'Why haven't you washed the car? I couldn't stand that.'" Back tells them the truth. "Once I wash that car, it will never be that dirty again." In other words, the treasure-find appearance will be gone.

Back read about the '72 through a small local newspaper ad in his area of Menifee County, Kentucky. Buried in an ad for farm equipment were the words "1972 Corvette Stingray." On a Friday afternoon you could go view the farm equipment and the Corvette from noon to 2. The sale was the next day, Saturday. Back and a buddy made the drive to the farm. But they thought they would never find the place. They kept driving and driving and driving, up and down hills and around curves. The road got so narrow in places only one car could pass. Finally, they found the farm. "If you drove by this place, you would have never thought a '72 Corvette would be setting inside. The farm is in the middle of nowhere."

The '72 had been parked in the barn since 2008. Before that, the farmer stored the car in his basement for an even longer period of time. Viewing the car was difficult in the dark barn. "I couldn't tell a whole lot about it. It was dark and all we had were our phones with the flashlight app. We just kind of walked around and looked to see if it had original paint." Back warmed up to this '72 the more he looked. The 38-year-old has fond memories of riding in his father's '72 Vette, when he was 5-6 years old and could not see over the dash.

The engine was the base 350. Back's friend read off the numbers on the block and sure enough, they matched the last six digits of the VIN. The paint looked original beneath the layers of dust and bird droppings. Maybe there was more to this Vette than met the eye. Back was more than a little enthused when the farmer said he bought the car brand new right down the road in Irvine, about 30 miles away. The original window sticker went with the car, along with an original title.

"That's something you don't find. A guy buys a car new in '72 and here it is 2015 and you have the opportunity to purchase it?" Auction day, "everything sells, but the Corvette sells last." To Back, the owner didn't seem to care any more about his old '72 Vette than he would a '96 Ford Escort. Maybe that's why the car went up for auction just like it sat in the barn, no clean up.

"Here I am nervous, wanting to buy the car. They start out the bid at $15,000, then 10 then 5, then this guy held his hand up and said '$1,000!' I let them run it up there for a while until I was ready to get in. At about $9,500 a guy gets out and I jump in and throw my hand up. The auctioneer says, 'Got a new man,' which was me. I run the car up to eleven-four and thought I had it bought. Another guy bidding earlier jumps back in at eleven-five. I got this figure in my head, I'm gonna go 12,000."

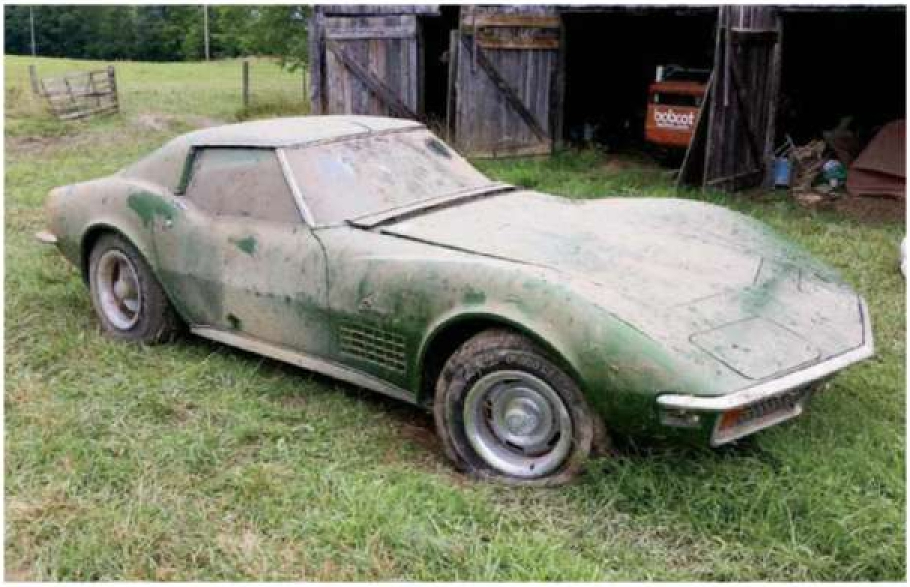
At the third and final call Back is high bidder at $11,600, which totals $12,760 with a 10 percent commission. "I went up there to pay and the owner told me to hang on a minute. He brings me back a box full of papers. He's kept every piece of paper, from the original title and window sticker to insurance and license receipts and everything he's done to the car."

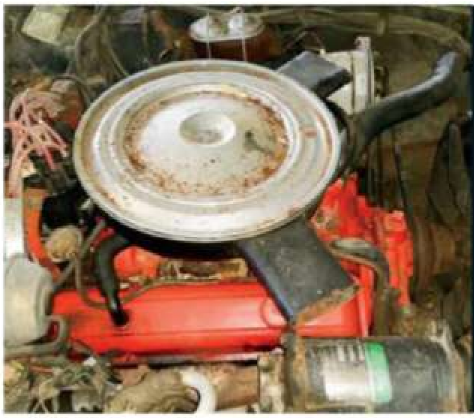
Obviously, the owner had to think a lot of his Corvette. He just didn't show it. Back found out the car had been cared for. "He had the motor rebuilt in 2000 – new pistons, rings, cam bearings, timing chain, all that stuff rebuilt, including the transmission."

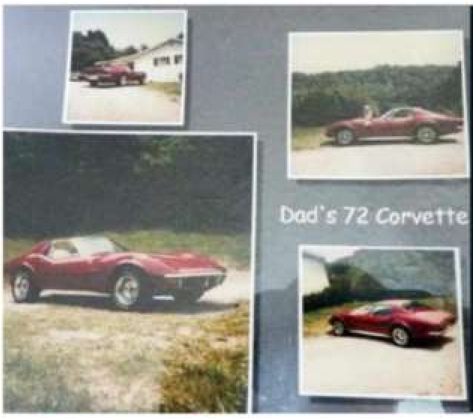
Back drained the old gas out of the tank, poured in new gas, and then tried to start the engine. "I'm not lying to you. I hit the key and it fired right up."

Back and his father run an auto body shop – Back's Body Shop in Means, Kentucky. They do insurance work on late-models, but their passion is old American muscle cars and Corvettes. Back has the expertise and the shop to return this car to like-new.

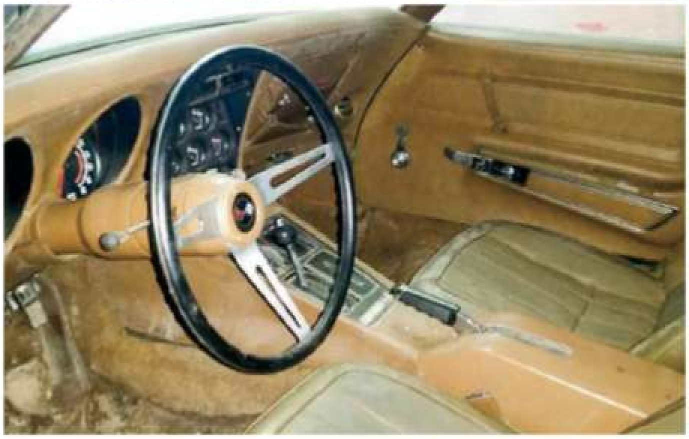
However, who knows, he might just leave the Vette dusty and dirty for a long time. "To the best of my knowledge, I'm going to say the body has 95 percent original paint." **VETTE**

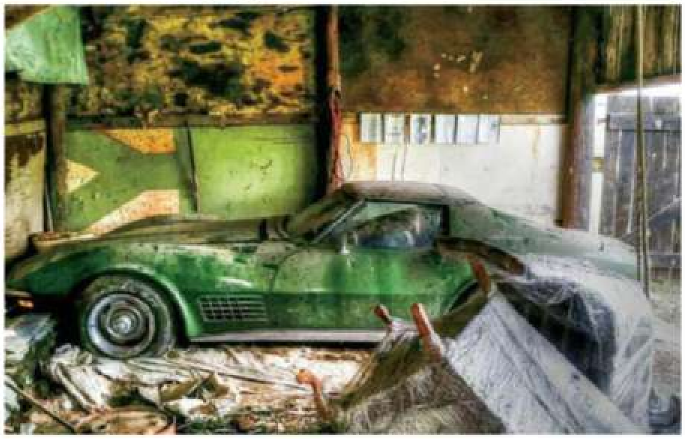

Despite the accumulation of dirt for many years, the paint looks original.


The engine is the base 350 – a numbers-matching original.



This page from an old scrapbook shows "Dad's '72 Corvette," including a photo of Tony – 5 or 6 years old – sitting on the hood.


The original Saddle interior is in fair condition. The carpet needs to be replaced, though.


Tony got a good side shot of the car to reveal how it sat in the barn for the last 10 years. (We digitally enhanced the photo to lighten the dark areas.)

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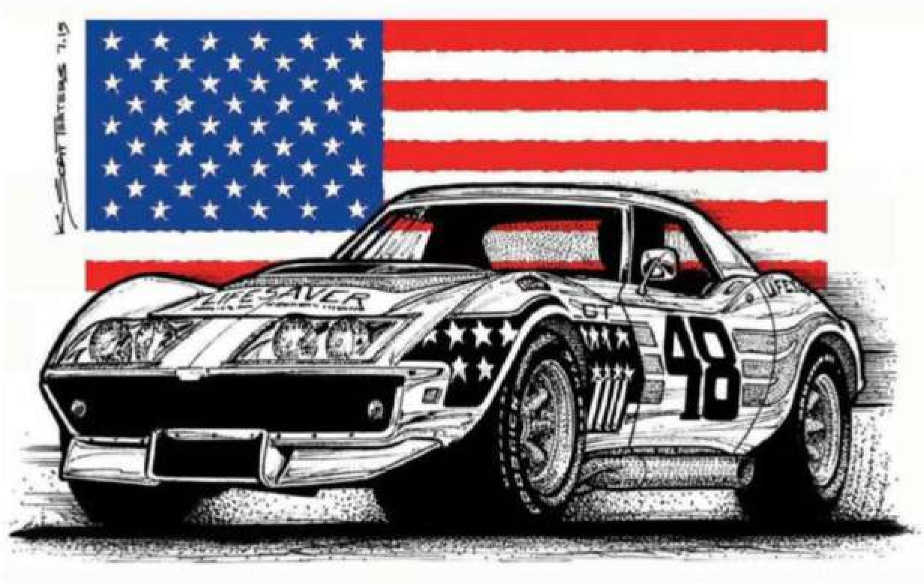


A BRIEF JOHN GREENWOOD RETROSPECTIVE

A CORVETTE LEGEND PASSES

On July 7, 2015, the Corvette community lost another legend; John Greenwood passed. He was 70 years old. John was a member of a very small club of legendary Corvette figures that only needed one name, such that when you said that one name, it spoke volumes. Just a few others are: Shinoda, Lingenfelter, Callaway, Yenko, Guldstrand, and of course, Duntov. Engage any serious Corvette person in some bench racing, drop the name Greenwood and instantaneously all manner of mental images come to mind: suspension packages, C4 body kits, BFGoodrich Stars and Stripes, 427 ZL1 racers, and the most outrageous Corvette racers ever, the C3 widebody "Batmobile" Greenwood IMSA cars. It wasn't just John Greenwood's victories that made him a Corvette legend, as there have been many other racers that have racked up more wins and championships. Greenwood did three major things and he did it with an all-American style that was remarkable.

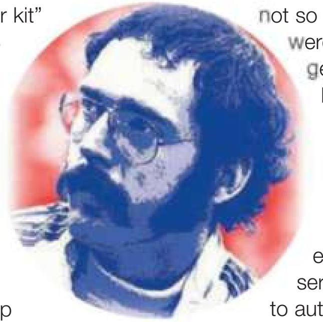
Beginning in 1957, Mr. Duntov always made sure that "his racers" had the best Chevrolet-engineered parts for racing that he could provide, starting with the RPO 684 Heavy-Duty Racing Suspension option. This option, along with the fuelie engine, four-speed manual transmission, Positraction rear, and wider steel wheels formed the basic essentials for the early days of Corvette racing. In 1963, the Z06 option was released, followed by the 427 L88 in 1967, and eventually the release of the all-aluminum version of the L88, the ZL1. It was as if the ZL1 was made for John Greenwood. In a sense, it was the beginning of the end of the Duntov "racer kit" days. John took the basic L88 racing suspension and ZL1's ability to produce massive amounts of horsepower and torque where no one had gone before. Combined with gigantic road racing slicks, the factory frame needed so much strengthening that when *Hot Rod* magazine visited Greenwood's shop to see John's first batch of widebody cars, the editors opined, "Is there any Corvette left in this car?"

What's obvious now was "new" back in 1973-'74. It was John Greenwood that suggested to Duntov that a widebody kit should be developed that would cover the widest tires and generate additional downforce. You see, John and Burt Greenwood understood how modern race cars needed to be more than just slippery through the air. The ZL1 could easily spin the biggest tires available, so downforce and air management was the new frontier. GM stylist Randy Whitten penned the shape and when Greenwood's widebody IMSA racer debuted in 1974, all decked out in a new stars and stripes livery, it looked like the Corvette from another planet. John and Burt Greenwood finished Duntov's "racer kit" program – it could go no further as a production-based racer. In fact, the next step was back to purpose-built, tube frame race cars.

The second thing that John Greenwood did, before his racing career took off, was he started his engine-building business ARE (Auto Research Engineering), in 1969. As John learned new ways of coaxing power from big-block Chevy engines, he applied his new insights into his customer work. This set a pattern that continued for years to come. By the time Greenwood was into his IMSA program, he was offering turnkey customer cars. New developments that John worked into his race cars were built into his new customer cars, or would be retrofitted into existing customer cars. Do-it-yourself racers could also buy the complete suspension kit. This was the beginning of the "full-Greenwood suspension" era. In a sense, John and Burt picked up the "racer kit" concept where Duntov left off when he was forced to retire in January 1975.

The third thing that John Greenwood did that contributed mightily to his legend status was his custom street cars. Like Joel Rosen's Motion Performance, customers could buy the body parts for a do-it-yourself experience. Like many kit cars, some turned out good, many not so good. However, if your pockets were sufficiently deep, you could get a fully worked out, quasi-IMSA race car for the street with all the creature comforts of a new, factory Corvette. From 1975 to 1981, approximately 43 custom street Corvettes were built, based on five different body styles. Each car was serialized with an ID nameplate to authenticate the car as a "Greenwood Corvette."

First were the "GT" and "Sebring GT" cars, built on production 1975-'77 Corvettes. Then there were 30 "GT" cars built for Corvette racer and dealer Rick Mancuso. The "Sportwagon" was a cleaned-up version of the body kit offered by Eckler's. The "Turbo GT" was an



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extension of the "GT" and "Sebring GT" that used the widebody style, but more integrated into the fenders and had a large, flat fastback rear window, and a big wing rear spoiler. The turbocharged L82 engine had 7 psi of boost through a Holley 650 carb and used water injection to curb pre-detonation. The "Daytona" was arguably the wildest of the entire race car-based, street Greenwood Corvettes. Based on the shovel-nosed 1980 Corvette, the body used every scoop, vent, fin, duct, and spoiler-effect allowed by IMSA's loose rules. Only five Daytonas were built and some of the cars had the full Greenwood five-link coilover suspension. The "GTO" Greenwood Corvette was based on the 1981 Corvette and was a less aggressive version of the Daytona. The GTO body design was used on the T&R Racing Greenwood GTO racer and broke track records with speeds over 200 mph.

The late '70s and early '80s brought major changes to Greenwood's business. Even though John had massive Chevrolet backdoor support, there was no competing with the likes of the full-bore factory efforts from Porsche, Audi, and BMW. When the C4 came out John did a little racing in the Playboy Escort Endurance, the IMSA Supercar series, and the 1989 Corvette Challenge – sans the stars and stripes livery. Greenwood's big "G-Cars" project was so ambitious, it nearly broke the company. There were three versions of G-Cars: the G572, G383, and G350. In hindsight, the G-Cars were an exercise in overkill. Think "exotic race car" meets "exotic luxury car." The cars were dripping with racing hardware: super-rigid frames; coilover shocks; antidive/antisquat suspension; huge wheels, tires, and brakes, exotic materials for its day, and ultra-custom full aero-body design. The G572 used an all-aluminum Keith Black big-block and the G383 used a stroked Lingenfelter engine. The problem was cost. The entry-level G350 cost just over $100,000, the G383 was to go for $130,000, and the G572 had a proposed price of a staggering $425,000! A few orders were placed for the G350 and G383s, and there were no takers for the G572. A stock LT1 Corvette listed for $36,185 and the nation was in a recession. Timing is everything.

Attaining "legend" status is about more than just statistics: number of wins, track records, or championships. John Greenwood won the SCCA Championship for A/Production in 1970 and 1971, defeating the seemingly undefeatable Owens-Corning Thompson-DeLorenzo team. Greenwood won the 1975 Trans-Am Championship, after Brumos Porsche had dominated the class in 1973 and 1974. Along the way Greenwood cars set track records, qualified number one many times. John was the key sponsor man behind the Sebring '74, Sebring '75, and Riverside '75 racing events. Greenwood put up his own money for the purse and track improvements. And when Greenwood went to race at Le Mans, he was a rock star. The Europeans loved his big, LOUD Corvettes!

John's stars and stripes #48 car (paint design by Burt Greenwood) graced the cover of the first major Corvette history book, Karl Ludvigsen's 1973 book: *Corvette: America's Star-Spangled Sports Car – The Complete History.* For many years, the publisher of the book, Automobile Quarterly, offered a large color poster of the car as well. And in 1976 Greenwood's #48/49 BFGoodrich Corvette was on the cover of *Vette* magazine founder, Marty Schorr's book, *Corvette From Six to Stingray.* Many of the Greenwood race cars have been fully restored and whenever they come up at auction, there's always a lot of excitement.

While sports car racing has never been a poor-man's sport. John Greenwood was arguably one of the last independent Corvette racers that had enough backdoor factory support to give him a shot at taking on the big European factories. With loud, in-your-face big-block power, in blazing red, white, and blue, everyone knew when John Greenwood was at the track. That's the stuff of legends. Thanks John, and Burt too. **VETTE**

K. SCOTT TEETERS

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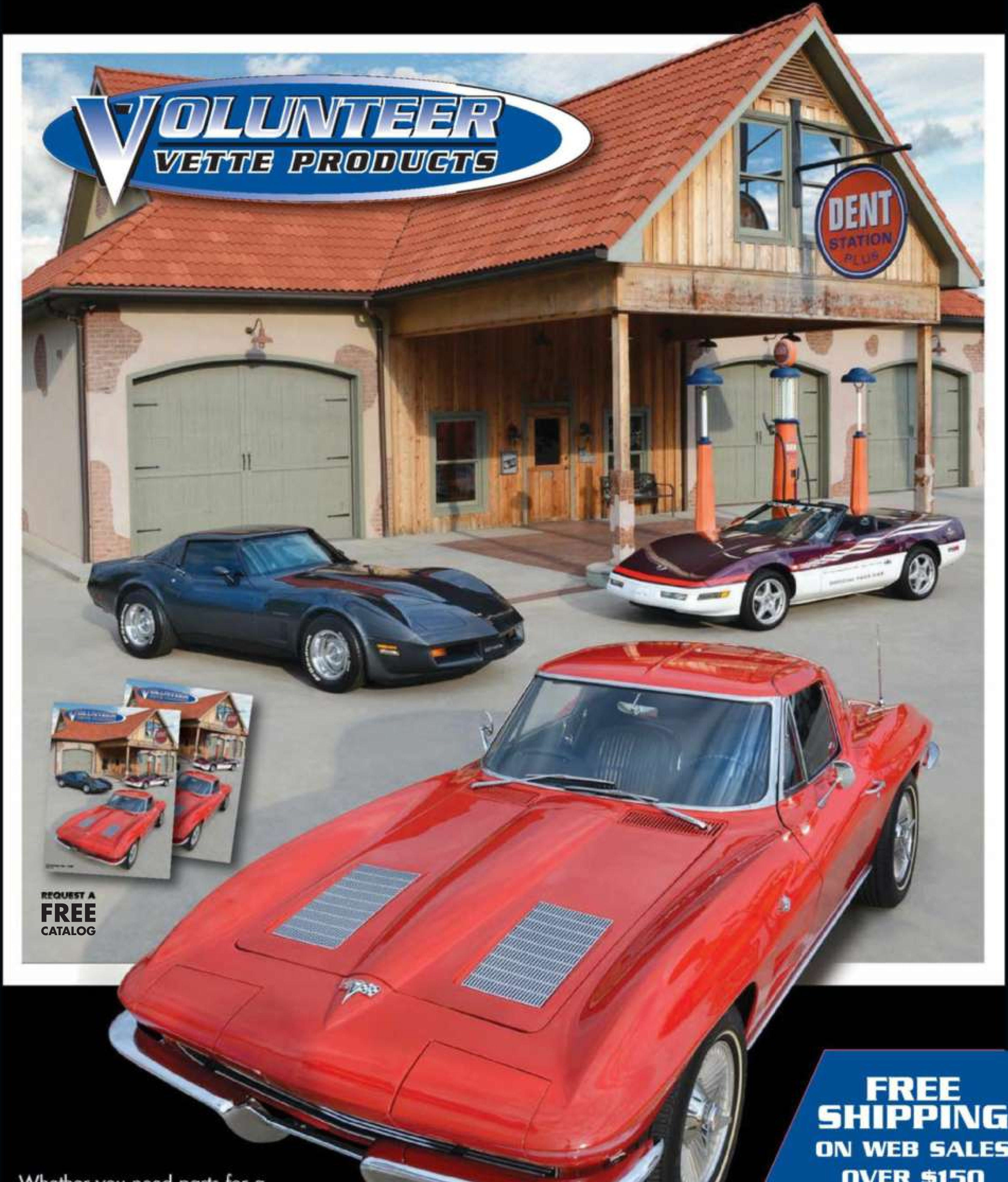

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